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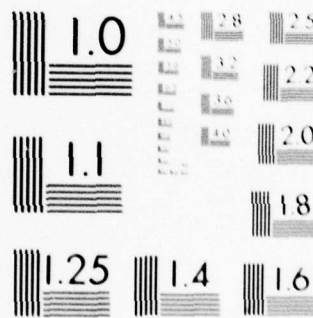
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FINAL
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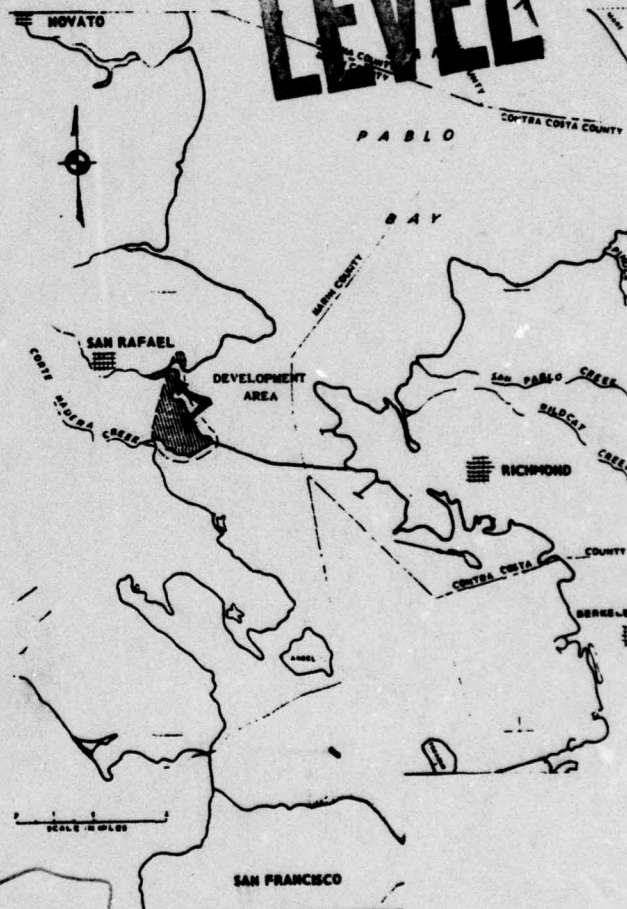
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EAST SAN RAFAEL
BAYLANDS DEVELOPMENT
REGULATORY PERMIT APPLICATIONS
MARIN COUNTY, CALIFORNIA

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Regulatory Permit Applications By

- San Quentin Landfill Co
Public Notice No. 9344-47
(Originally 74-0-9 & 74-0-9(a))
- Dr. Haskell Norman
Public Notice No. 9441-47
- Marin Municipal Water District
Public Notice No. 9542-47
(Originally 75-198-059)
- Ghilotti Brothers Inc.
Public Notice No. 11403-47
- Holiday Magic-Herzstein Trust
Public Notice No. 12255-47
- Mr. Forrest R. Morphew
Public Notice No. 12444-47
(Originally 74-0-25 and Later
Changed to 9715-47)



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12 377p.
U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO, CALIFORNIA

11 JUN 1979

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) EAST SAN RAFAEL BAYLANDS DEVELOPMENT REGULATORY PERMIT APPLICATION, MARIN COUNTY, CALIFORNIA		5. TYPE OF REPORT & PERIOD COVERED Final Environmental Statement
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s)		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Army Corps of Engineers, San Francisco District 211 Main Street San Francisco, CA 94105		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Office of the Chief of Engineers U.S. Department of the Army Washington, DC 20314		12. REPORT DATE June 1979
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		13. NUMBER OF PAGES 347
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for Public Release; Distribution Unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Commercial Development Light-industrial Development		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) <i>This report describes the</i> Fill of approximately 180 acres of land diked off from San Pablo Bay in the East San Rafael Baylands area for commercial and light-industrial development in accordance with the San Rafael Redevelopment Agency Plan for the area.		

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DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

SPNED-E/SPNCO-R

19 JUL 1979 *

RESPONSE REQUIRED BY: 20 AUG 1979

**EAST SAN RAFAEL BAYLANDS DEVELOPMENT FINAL ENVIRONMENTAL STATEMENT:
COMMENT PERIOD**

For the applications announced in San Francisco District Public Notices 9344-47 (originally 74-0-9 and 74-0-9(a)), 9441-47, 9542-47 (originally 75-198-059), 11403-47, 12255-47, 12444-47 (part of which was originally included as 74-0-25 and later changed to 9715-47).

TO WHOM IT MAY CONCERN:

1. As announced in Public Notices No. 9344-47 (originally 74-0-9 and 74-0-9(a)), 9441-47, 9542-47 (originally 75-198-059), 11403-47, 12255-47, and 12444-47 (part of which was originally included as 74-0-25 and later changed to 9715-47), the San Quentin Disposal Company, Dr. Haskell Norman, Marin Municipal Water District, Ghilotti Brothers, Inc., Holiday Magic - Herstein Trust, and Mr. Forrest R. Morphey, respectively, have applied to the Department of the Army for individual permits for the filling of approximately 51 acres (total) in the east bayland area of San Rafael. The fill area is part of a larger site which would be developed for residential, commercial and industrial uses. All the applications for fill are within an area considered in the "Urban Design and Development Policy Statement for East San Rafael" as adopted by the San Rafael Redevelopment Agency in June, 1977.
2. In response to the National Environmental Policy Act of 1969, Public Law 91-190, the San Francisco District, U. S. Army Corps of Engineers, has prepared a Final Environmental Statement (FES) for the subject permit applications. The FES was announced in the Federal Register on A Draft Environmental Statement for the East San Rafael Baylands Development was issued in February 1977. This Environmental Statement also serves as the Final Environmental Statement for the San Quentin Landfill Public Notice No. 9344-47 (originally 74-0-9 and 74-0-9(a)) dated 27 July 1973 and 8 August 1973 respectively). A Draft Environmental Statement for San Quentin Landfill was issued in November of 1974, and a proposed final ES was informally issued in July 1975.
3. The District is now soliciting comments and views of appropriate government agencies, interested groups and individuals concerning the FES. Please submit your comments to the District Engineer, San Francisco District, by

* If the Federal Register filing date is later than this date, the response is required 30 days from the date of Federal Register filing.

SPNED-E/SPNCO-R

the date indicated above so that they can be considered along with other relevant information in arriving at the final decision on the application. The final decision on the permit cannot be made until 30 days have passed from the announcement in the Federal Register that the FES has been filed with the Environmental Protection Agency or until 30 days from the mailing of the document, whichever date is later.

4. Copies of the FES are available for review by contacting the San Francisco District (415-556-0325) and at the Marin County Free Library, the San Rafael Library, and the Novato Library.

Sincerely yours,

John M. Adsit
JOHN M. ADSIT
Colonel, CE
District Engineer

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SUMMARY

EAST SAN RAFAEL BAYLANDS DEVELOPMENT
REGULATORY PERMIT APPLICATIONS
MARIN COUNTY, CALIFORNIA

() DRAFT ENVIRONMENTAL STATEMENT

(X) FINAL ENVIRONMENTAL STATEMENT

Responsible Office: District Engineer
U.S. Army Engineer District, San Francisco
211 Main Street
San Francisco, CA 94105
(415) 556-3660

1. Name of Action: (X) Administrative () Legislative
2. Description of Action: Develop the East Baylands of San Rafael for residential, commercial, industrial, and open space uses. This will involve fill and development in accordance with the San Rafael Redevelopment Agency plan for the area.
3. a. Environmental Impacts: Change in land use from basically undeveloped open space to urban uses; increase in vehicular traffic; changes in air and water quality; change in noise levels, loss of wildlife habitat.
b. Adverse Environmental Effects: Loss of wildlife habitat; decreased air and water quality; increased need for services; and increased vehicle traffic.
4. Alternatives: Permit denial; permits issued with conditions to insure that adverse environmental impacts will be minimized or avoided; modified project.
5. Comments Requested:
 - U.S. Senator Alan Cranston
 - U.S. Senator S. I. Hayakawa
 - U.S. Representative John Burton
 - ** U.S. Department of Agriculture
 - ** U.S. Department of Commerce
 - Secretary for Environmental Affairs
 - National Oceanic Survey
 - Maritime Administration
 - ** U.S. Department of Health, Education and Welfare
 - U.S. Department of Housing and Urban Development
 - ** U.S. Department of the Interior
 - Heritage Conservation and Recreation Service
 - Office of Environmental Project Review
 - Fish and Wildlife Service
 - Geological Survey
 - National Park Service

* Commented on East San Rafael Baylands Draft ES

Commented on San Quentin Landfill Draft or Proposed Final ES

U.S. Department of Labor
 U.S. Department of the Navy
 ** U.S. Department of Transportation
 Coast Guard
 Federal Highway Administration
 ** U.S. Environmental Protection Agency
 # U.S. Advisory Council on Historic Preservation
 Federal Energy Administration
 State Senator Peter Behr
 State Assemblyman Michael Wornum
 Association of Bay Area Governments
 * Bay Area Air Pollution Control District
 State Water Resources Control Board, San Francisco Bay Region
 Metropolitan Transportation Commission
 San Francisco Bay Conservation and Development Commission
 ** Office of Planning and Research
 # California Department of Transportation
 # California Department of Parks and Recreation
 # State Solid Waste Management Board
 # California Health and Welfare Agency
 State Historical Preservation Officer
 Marin County Planning Department
 * Marin Municipal Water District
 Mayor of San Rafael
 Redevelopment Agency
 * San Rafael Planning Department
 Environmental Design Librarian, University of California
 Water Resources Center Archives, University of California
 West County Ecology Center
 Colorado State University
 Marin County Free Library
 San Rafael Library
 California Chamber of Commerce
 League of Women Voters of California
 League of California Cities
 Associated Sportsmen of California
 Oceanic Society, San Francisco Bay Chapter
 California Institute of Man in Nature
 California Tomorrow
 Society for California Archaeology
 Friends of the Earth
 California Marine Affairs and Navigation Conference
 Environmental Quality Coordinating Council
 Sierra Club
 San Francisco Bay Chapter
 Redwood Chapter

* Commented on East San Rafael Baylands Draft ES

Commented on San Quentin Landfill Draft or Proposed Final ES

Audubon Society

Western Regional Office

Madrone Audubon Society

Golden Gate Audubon Society

* Marin Audubon Society

Marin Conservation League

California Wildlife Federation

Save San Francisco Bay Association

The Nature Conservancy

Ecology Center

Environmental Defense Fund

San Francisco Bay Planning and Urban Renewal Association

Marina Vista Improvement Club

Marin Yacht Club

Bay Land Area Study Team

Nine Individuals

6. Draft Statement for San Quentin Landfill to CEQ: 13 December 1974.
Draft Statement for East San Rafael Baylands to CEQ: 3 March 1977.

* Commented on East San Rafael Baylands Draft ES

ERRATA SHEET

East San Rafael Baylands Development Regulatory Permit Application
Marin County, California

FINAL ENVIRONMENTAL STATEMENT

Page

Paragraph

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Replace the last sentence with the following:
"Section 7 Consultation, as required by the
Endangered Species Act of 1973, as amended,
has been initiated with the U. S. Fish and
Wildlife Service. The required Biological
Assessment is currently under review."

FINAL
ENVIRONMENTAL STATEMENT

EAST SAN RAFAEL
BAYLANDS DEVELOPMENT
REGULATORY PERMIT APPLICATIONS
MARIN COUNTY, CALIFORNIA

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INTRODUCTION

The Corps has received eleven applications for various fill and development permits in the East San Rafael Baylands since 1973. Since the proposed projects are in close proximity these areas should be considered collectively as the cumulative effect of numerous piecemeal changes could result in major changes to the existing environment of the East San Rafael Baylands. Due to the cumulative impact of the proposed projects the Corps determined that an Environmental Statement was required for this area.

The March 1977 Draft ES is based on the impacts of the East San Rafael portion of the Central San Rafael Redevelopment Plan proposed by the City of San Rafael and dated May 1976. Of the six current permit applications considered in this Final ES for the East San Rafael Baylands, four were considered in the March 1977 Draft ES. This Final ES is based on the impacts of the East San Rafael portion of the Central San Rafael Redevelopment Plan and on the "Urban Design and Development Policy Statement" of June 1977. Even though there have been changes in the number of permit applications, both the March 1977 Draft ES and this Final ES include the impacts of the entire development area, including parcels under Corps jurisdiction for which Department of the Army permit applications have been filed and parcels for which applications have not been received as well as the impacts of development on land in the East San Rafael Baylands outside of Corps jurisdiction.

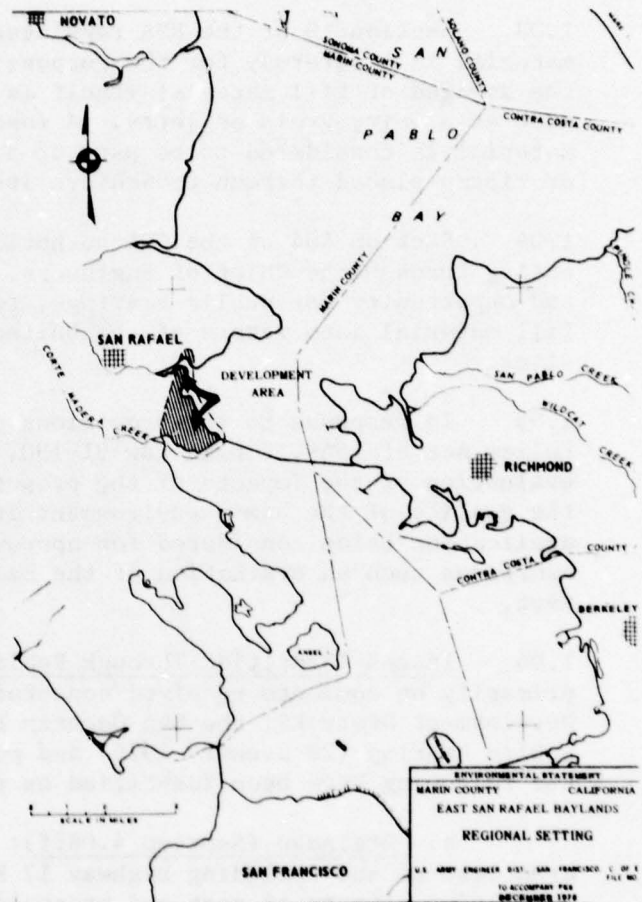
FINAL ENVIRONMENTAL STATEMENT

EAST SAN RAFAEL BAYLANDS DEVELOPMENT REGULATORY PERMIT APPLICATIONS MARIN COUNTY, CALIFORNIA

1.00 PROJECT DESCRIPTION

1.01 Authority. There are 6 current Department of the Army permit applications pending for various proposed fill and development projects in the East San Rafael area (Plates 1 and 2). Most of the proposed projects are for small areas and would not result in a significant impact when considered alone. However, when considered collectively, the cumulative effect of numerous piecemeal changes could result in major changes to the existing environment of the East San Rafael area (permit applications are described in paragraphs 1.10 ff).

1.02 The Army's authority over these lands is based upon Section 10 of the River and Harbor Act (RHA) of 1899 (33 U.S.C. Sec. 403) and upon Section 404 of the Clean Water Act (33 U.S.C. Sec. 1344) which pertains to the discharge of dredged or fill material into the waters of the United States. As explained in Public Notices 71-22, 71-22(a) and 71-22(b), dated 11 June 1971, 18 January 1972, and 6 July 1976 respectively, the Army's regulatory jurisdiction based on the RHA extended to the line on shore reached by the plane of the mean of the higher high water (MHHW). However, on 11 May 1978, the Army's



REGIONAL SETTING (SEE PLATE 1)

jurisdiction under the RHA was altered to conform to the opinion of the U.S. Court of Appeals, 9th Circuit, which decided the Army's regulatory authority under Section 10 of the River and Harbor Act extends only to the elevation of mean high water (MHW). The Army's authority continues to include jurisdiction over all new work in unfilled portions of diked areas below former MHW.

1.03 Section 10 of the RHA regulates the placement of dredged or fill material in a waterway for the purpose of erecting a structure for which the dredged or fill material itself is used to construct the structure, such as a weir, groin or jetty. A roadway bed of dredged or fill material is considered to be part of a structure as well as rock, sand, or riprap placed thereon to achieve its structural integrity and stability.

1.04 Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into waters of the United States at specific disposal sites.

1.05 In response to the provisions of the National Environmental Policy Act of 1969, Public Law 91-190, 42 U.S.C. Sec. 4321 et seq, an evaluation of the impacts of the proposed activities on all aspects of the quality of the human environment is required prior to any permit application being considered for approval. This Environmental Statement addresses such an evaluation of the East San Rafael Baylands Development.

1.06 Issues Identified Through Public and Agency Review. Based primarily on comments received concerning the East San Rafael Baylands Development Draft ES, the San Quentin Landfill Draft ES, and a Corps public hearing (28 January 1976) and public meeting (22 September 1978), the following have been identified as primary issues:

a. Drainage (Section 4.08ff): Originally drainage from the area west of and including Highway 17 had open access to the Bay. The cumulative effects of past and proposed filling in the project area could result in exposing Highway 17 to flooding. Currently the project area provides storm drainage facilities as part of the drainage assessment district operated by the City of San Rafael. The storm drainage facilities were designed to accommodate a 100-year storm return frequency. Calculations indicate that the maximum water surface elevation in the drainage channel south of Highway 17 (based on the 100-year storm frequency) would be 1.3 feet on United States Coastal and Geodetic Survey (USC & GS) datum and thus would not expose Highway 17 to flooding.

b. Loss of Wetland (Section 4.02ff): The sites proposed to be filled are seasonally inundated and have habitat values characteristic of wetlands, a valuable public resource. None of the proposed projects in the area are waterfront dependent. Both the U.S. Department of the Interior (Fish and Wildlife Service) and the State of California Resources Agency (Department of Fish and Game) object to any project that would destroy wetlands in this area. In addition, these agencies have requested compensation for wetland values destroyed by fill placed without required authorization.

c. Endangered Species (Paragraph 4.06): The salt marsh harvest mouse, an endangered species, is known to exist on the East San Rafael Baylands site. The proposed project will destroy wetland habitat utilized by this species. This impact has not yet been mitigated. This Final Environmental Statement will serve as the Biological Assessment required by Section 7 of the Endangered Species Act of 1973, as amended, to evaluate the impact on the species.

d. Traffic Congestion (Section 4.38ff): Traffic congestion would be the most critical at Bellam Boulevard west of Francisco Boulevard East due to the Highway 17 and 101 interchanges. With development of the East San Rafael Baylands representing a projected traffic increase of almost 50 percent, this street would be operating at Service Level E (unstable operation-intersection at capacity) for extended periods during the morning and evening. However, improvements to Bellam Boulevard are scheduled for construction early in 1979. Initially, improvements to Bellam Boulevard were to alleviate existing traffic congestion only. Subsequent revisions to the plan of improvement have resulted in an increase in the capacity of the intersection. This increase in capacity will accomodate some but not all of the additional traffic generated by future development in the area.

1.07 Project Details. The area included in East San Rafael was historically water area, mudflats, or marshlands (Plate 3). The main levee that separated the area from tidal action was constructed by Marin Canalways and Development Company in 1956. A Department of the Army permit was issued for this levee (Permit No. 7375-47 and Public Notice 56-47). In 1975, the levee was reinforced and a drainage pipe was installed per Department of the Army permit No. 9382-45 (Public Notice 74-41-38). However, the master storm drain pumping station built by the Assessment District and which effectively drained the area was contained in permit number 9205-47 (Public Notice 73-39) issued 1973. Since 1956, piecemeal fill and development have taken place; a ponding area was created for flood control; and the San Rafael Redevelopment Agency has begun to plan for total development of what is now largely open space.

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1.08 The Corps has received 11 applications for various fill and development permits in East San Rafael since 1973. Because of the cumulative impact of the proposed projects the Corps decided an Environmental Statement is required. The Final ES is based on the impacts of the East San Rafael portion of the Central San Rafael Redevelopment Plan* and on the "Urban Design and Development Policy Statement" of June 1977 (included as Appendix D of this ES). This Environmental Statement covers the impacts of the entire development area, including parcels under Corps jurisdiction for which Department of the Army permit applications have been filed, and parcels for which applications have not been received, as well as the impacts of development on land in the East San Rafael Baylands outside of Corps jurisdiction. The plans included in the San Rafael Policy Statement would involve placement of approximately 51 acres of fill on areas which are now wetlands.

1.09 Since the publication of the Draft Environmental Statement for the East San Rafael Baylands Development in February 1977, some lands previously judged to be within the Corps jurisdiction have been re-evaluated from a jurisdictional standpoint. The areas now under jurisdiction of the Corps as of February 1979 are shown on Plate 7.

* Williams and Mocine of Sausalito, California, prepared a document for the San Rafael Redevelopment Agency entitled, "East San Rafael Redevelopment Plan, Final Environmental Report". This Final Environmental Statement will refer to the Williams and Mocine document which is included as Appendix B.

1.10 Changes have also occurred in the permit applications. The locations of the currently active applications are shown on Plate 2. Of the 8 applications discussed in the Draft ES, the following 4 applications are still pending.

(1)a. The San Quentin Disposal Company (Application No. 9344-47, Public Notice No. 74-0-9) applied for a Department of the Army permit for a proposed fill and industrial development of 21 acres of their baylands area. Due to a more accurate land survey, and a change in the Corps jurisdiction (paragraph 1.02), the Corps now claims jurisdiction under the River and Harbor Act of 1899 and the Clean Water Act over 10.21 acres of the 21 acres included in the original application. On the Corps map (Plate 7) the areas to be filled are parcel 8 and two ponds, 8A and 8B. The loss of these two ponds conflicts with the policy Statement (Appendix D) which shows the ponds as part of an open space strip. An industrial park has been proposed for the remainder of the filled area shoreward of the open space strip. This land use is consistent with the San Rafael Policy Statement. A revised plan proposed for this site is discussed in paragraph 1.28.

(1)b. A separate draft ES was prepared for the San Quentin Landfill in November of 1974, and a proposed final ES was prepared and informally circulated in July 1975. The proposed final ES is included as Appendix J of this report. Processing of the Final ES and permit application was halted to determine if Redevelopment Agency plans for open space and fish and wildlife preservation would resolve the existing objections from various fish and wildlife interests regarding San Quentin Landfill's application. The Draft Environmental Statement for East San Rafael Baylands Development Regulatory Permit Applications, Marin County, California dated March 1977 included developmental impacts on the East San Rafael portion of the Central San Rafael Redevelopment Plan. This Draft ES fully considered the impacts of the San Quentin Landfill Company proposed project as part of the overall Baylands development plan. The March 1977 Draft ES served as the Draft environmental document for the proposed San Quentin project. The Final ES for the East San Rafael Baylands Development will also serve as the Final ES for the San Quentin Landfill Company.



APPROXIMATE APPLICATION LOCATIONS
(SEE PLATE 2)

(2) Dr. Haskell Norman applied for a Department of the Army permit (Application and Public Notice No. 9441-47) to place approximately 100,000 cubic yards of fill on the remaining 9 acres of his 26-acre property in East San Rafael. The proposed fill would be in the areas labeled 5 and 5A on the Corps jurisdiction map (Plate 7). Parcel 5A is now a pond. Jurisdiction is claimed under the River and Harbor Act of 1899 and the Clean Water Act. A revised plan for these areas is discussed in paragraph 1.29. The proposed filling of this pond conflicts with the San Rafael Policy Statement.

(3) Samuel Gardiner applied for a Department of the Army permit (Application 9715-47 Public Notice 74-0-25) for new (31,000 cubic yards) and existing (57,000 cubic yards) fill on a 7.9 acre site in East San Rafael. This land is now included under Mr. Forrest Morphew's application No. 12444-47 (see paragraph 1.11).

(4) Marin Municipal Water District applied for a Department of the Army permit (Application No. 9542-27, Public Notice 75-198-059) to fill a 12.7 acre parcel in East San Rafael, using approximately 130,000 cubic yards of material. This application was originally under the name W. K. McLellan in the Draft ES. The immediate planned use for the area would be a temporary pipe storage yard. The Corps jurisdiction now includes 4.9 acres (parcels 7 and 7A on Plate 7) under the River and Harbor Act of 1899. Of the 4.9 acres, Marin Municipal Water District has dedicated 2.5 acres for open space along the bay (Appendix A, Document A-33). The proposed use of the remaining 2.4 acres would be commercial/industrial (Plate 5) according to the San Rafael Policy Statement.

1.11 Three new permit applications have been filed with the Corps since the publication of the Draft ES.

(1) Forrest Morphew (Application and Public Notice No. 12444-47) has applied for a Department of the Army permit to retain fill over 0.55 acres of his property (parcels 3A(1) and 3A(2) Plate 7), and to place new fill on 1.7 acres (parcel 3A(3) Plate 7). Corps jurisdiction is claimed under the River and Harbor Act of 1899 and the Clean Water Act. The area would be developed for commercial and industrial use as described in the San Rafael Policy Statement. This land was included in the Draft ES under Gardiner's application (Application 9715-47).

(2) Stanley Herzstein, class action trustee for the Holiday Magic Properties (Application and Public Notice No. 12255-47) has applied for a Department of the Army permit to retain approximately 58,825 cubic yards of existing fill covering approximately 1.7 acres of parcel 9 (Plate 7). Corps jurisdiction is claimed under the River and

(2) Dr. Haskell Norman applied for a Department of the Army permit (Application and Public Notice No. 9441-47) to place approximately 100,000 cubic yards of fill on the remaining 9 acres of his 26-acre property in East San Rafael. The proposed fill would be in the areas labeled 5 and 5A on the Corps jurisdiction map (Plate 7). Parcel 5A is now a pond. Jurisdiction is claimed under the River and Harbor Act of 1899 and the Clean Water Act. A revised plan for these areas is discussed in paragraph 1.29. The proposed filling of this pond conflicts with the San Rafael Policy Statement.

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(2) Stanley Herzstein, class action trustee for the Holiday Magic Properties (Application and Public Notice No. 12255-47) has applied for a Department of the Army permit to retain approximately 58,825 cubic yards of existing fill covering approximately 1.7 acres of parcel 9 (Plate 7). Corps jurisdiction is claimed under the River and

Harbor Act of 1899 and the Clean Water Act. The land use is designated in the San Rafael Policy Statement as commercial/industrial.

(3) Ghilotti Brothers, Inc. (Application and Public Notice No. 11403-47) has applied for a Department of the Army permit to retain approximately 3,000 cubic yards of existing fill on 0.55 acres (parcels 6B and 6C, Plate 7) and to place 40,000 cubic yards of new fill on 0.65 acres (parcels 6 and 6A Plate 7). Corps jurisdiction is claimed under the River and Harbor Act of 1899 and the Clean Water Act. The fill would destroy an existing ponding area (parcel 6). Loss of the pond conflicts with the San Rafael Policy Statement (see Plate 5 and Appendix D) which shows the ponds as part of an open space strip. Proposed use of the area is commercial/industrial.

1.12 One of the applications discussed in the Draft ES was permitted in 1975, (Permit No. 10449-53) and the work has been completed. The Marina Vista Improvement Club was issued a Department of the Army Permit to dredge Marina Vista Canal and dispose of the dredged material across San Rafael Creek. The disposal site, not within Corps jurisdiction (Appendix A, Document A-19), was purchased by the City of San Rafael. It is now part of Pickleweed Park in accordance with the San Rafael Policy Statement and will be developed for park and marsh use.

1.13 Re-evaluation of the early applications discussed in the Draft ES indicates that a permit is not required for one of the proposed projects. The City of San Rafael had applied for a Department of the Army permit (Application and Public Notice No. 9336-47) for existing fill of a 5-acre site. In April of 1978 this land was determined to be outside of Corps jurisdiction (Appendix A, Document A-3,).

1.14 Two of the original applications have been withdrawn. The Marin Yacht Club application (Application No. 11314-47) was withdrawn in November 1977. The City of San Rafael withdrew their application (Application 11219-47) for a Marina in September of 1978. No other application has been filed with the Corps for the former Marina site. The San Rafael Policy Statement has been amended by letter (Appendix D, page D-11), to indicate the land will be for residential or commercial use.

1.15 The Corps has also received a copy of the proposed commercial/industrial subdivision plans for the lands of Holiday Magic (parcels 9, 9A and 9B Plate 7). All of this land is included in Corps jurisdiction under the River and Harbor Act of 1899 and the Clean Water Act. However, at the time of publication the only permit application that has been filed is for the existing fill on parcel 9, Plate 7 (see paragraph 1.11(2)). The subdivision plans for site 9, 9A and 9B call for fill and development of 59.4 acres, to be used for commercial and light industry including; warehousing, storage, single item retail sales, manufacturing and repair, restaurants and professional offices. The plans also call

for the construction of a new levee west of the existing levee and the breaching of the existing levee to create an embayment and island totalling 32.6 acres. This plan converts less land to tidal marsh than is recommended by the Open Space/Wildlife Preservation section of the San Rafael Policy Statement, (sometimes referred to as the Policy Statement). However, the City has indicated that as the plan adheres to the intent of the Policy Statement, the City has no objection to the proposed project. The project proposal is included as Appendix K of this document.

1.16 Cumulative Impact Evaluation. To allow for a cumulative impact evaluation, this ES also considers the impacts of the following proposed development projects in East San Rafael that are outside the Corps jurisdiction.

a. Spinnaker Point would have 225 single-family townhouse units developed on 40.5 acres of man-made peninsula (Plate 5). As part of the project, 45 acres of marsh and tideland bayward of the main levee would be left undeveloped. Thirty-three of the units would be within the Bay Conservation and Development Commission's (BCDC) 100-foot strip along the bay; however, public access along the bay would be provided. Levee repair around the site does not require a permit but any new fill and maintenance in the area under Corps jurisdiction would require a permit. To date, no fill permit applications have been received for Spinnaker Point. The City of San Rafael has prepared a Final Environmental Impact Report (September 1976) for the proposed development.

b. Seastrand was referred to as "Seastrand North" in the Draft Environmental Statement. Four or five acres of marsh on this 34-acre site (see Plate 5) would be retained as marsh. The balance would be developed as single family, low density housing. Corps jurisdiction corresponds with the designated open space, so development that is out of the open space area will not require a Department of the Army permit.

c. Seastrand South (included in the Draft ES) is no longer zoned for housing. The City of San Rafael purchased the area to expand Pickleweed Park (Area 2, Plate 5).

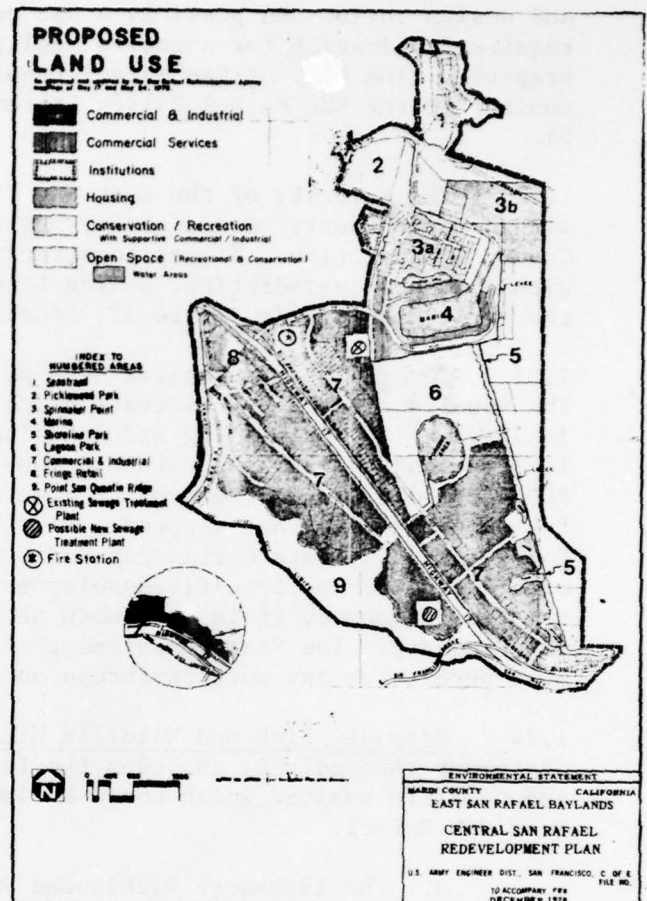
1.17 Fringe Retail. The area located southeast and northwest of Bellam Boulevard is being included in the East San Rafael Plan for retail commercial use. (Plate 5). Much of this development would be built on filled areas. This area is not within the Corps jurisdiction.

1.18 Industry. The City of San Rafael has formed development plans for the area designated "Business and Industrial" (Plate 5). To date, the Corps has six fill permit applications pending in this area (see paragraphs 1.10ff).

1.19 Open Space and Landscape Development. Open spaces and parks are planned along the shoreline and on certain sections of the east baylands area (Plate 5). Parks include Shoreline Park, Lagoon Park, and Pickleweed Park. The City of San Rafael recently purchased land, which was originally designated as residential, for open space use. This land has been incorporated into Pickleweed Park.

1.20 Traffic circulation. There would be various changes in existing roads for the proposed developments. Kerner Boulevard, the Bellam Boulevard interchange with Highway 17, and possibly Anderson Drive would be affected (Plate 5). The Corps would have jurisdiction over sections of road that cross streams or wetlands and areas below mean high water.

1.21 Additional Regulatory Requirements. City permits are required for filling and building in the area. Any fill generally requires a fill and a use permit from the Planning Commission and a Public Works Operating Permit. Building in the area would require an environmental



PROPOSED LAND USE
(SEE PLATE 5)

and design review and possibly a use permit. Large developments would require application for negative declaration if an EIR were not to be prepared. The City of San Rafael requires development applications to conform to the San Rafael Policy Statement for East San Rafael (Appendix D).

1.22 The majority of the East San Rafael development area is not within Marin County jurisdiction; parts of the canal area are within County jurisdiction. If any construction is proposed on tidelands within County jurisdiction, a Tide Land Waterways Permit is required by the Marin County Code, Title 22, Section 22.77.

1.23 Several state agencies have permit jurisdiction in the area. The San Francisco Bay Conservation and Development Commission, (BCDC) issues permits for filling and dredging projects in the Bay, and certain limited land use changes within a 100-foot band along the Bay shore. BCDC jurisdiction in the project area only includes the area proposed for the Shoreline Park (Appendix D). The Regional Water Quality Control Board issues a State Certificate of Conformance for projects that impact water quality. As specific development plans for East San Rafael have not been proposed, it is not known at this time whether state certification is necessary. The State Department of Transportation requires an encroachment permit for any work performed on the state right-of-way.

1.24 Proposed Fish and Wildlife Mitigation. The San Rafael Policy Statement (Appendix D) includes the following mitigation plans for fish and wildlife habitat which would be lost as a result of development in East San Rafael.

a. The 19.5-acre Pickleweed Park site has been purchased by the City of San Rafael and will be utilized as a neighborhood park. The plan for the site includes an area to be planted with indigenous vegetation and an area to be excavated and restored to tidal action. The 6-acre existing marsh area located to the east of Pickleweed Park shall be retained (Area 2, Plate 5).

b. The 45-acre shallow marsh tideland northeast of Spinnaker Point development will be permanently preserved and dedicated to the City of San Rafael (Area 3b, Plate 5).

c. The 4-5-acre marsh on the Seastrand site will be preserved, and if possible, upgraded by breaching the dike and subjecting it to tidal action (Area 1, Plate 5).

d. A 100-foot wide linear park will be established along the Bay shoreline from the southern boundary of the City to the Spinnaker Point development. The public will have complete access to this park. The park will include pedestrian walkways, picnic facilities, and public parking at the three access points (Area 5, Plate 7). The owners of the property involved in this mitigation measure would be required by the City of San Rafael to donate the land for open space use. The City would require such a dedication as a condition for approval for any city permit, including zoning, subdivision or fill placement.

e. A portion of the Holiday Magic Property (Parcels 9A and 9B, Plate 7) will be preserved as wetlands. The policy Statement recommends that 25 acres be developed and 55 acres be restored to tidal action as a marsh. This recommendation differs in acreage from the development plan for this area proposed by Stanley Herzstein, class action trustee for the Holiday Magic Properties, described in paragraph 1.15. The City of San Rafael has indicated that city permit approval will be granted to any project that is consistent with the intent of the Policy Statement and meets the mitigation requirements of the U.S. Fish and Wildlife Service.

f. The existing ponds, included in parcels labeled 1,2,5A, 5B,6,8A,8B and 10 on Plate 7 as well as the lagoon, parcel 11A, will be preserved.

g. A portion (59-69 acres) of the Point San Quentin Ridge natural hillside will be preserved as permanent open space (Area 9, Plate 5).

1.25 Among the agencies coordinating with the Corps on permit actions, those with particular expertise and responsibility for fish and wildlife are the U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration (NOAA), and the California Department of Fish and Game. These agencies are opposed to the mitigation plans for fish and wildlife habitat proposed by the City of San Rafael as compensation for issuance of Corps permits. The Department of Fish and Game has developed a state-wide wetland policy effective September 1977 (Appendix H, Document H-5) which prohibits fill and destruction of wetlands unless all of the following conditions are met:

1. The project must be water dependent or an essential transportation, water conveyance or utility project.

2. There must be no feasible, less environmentally damaging alternative location for the project.

3. The public trust must not be adversely affected.

4. Adequate compensation for project caused losses shall be a part of the project. The areas that are considered wetlands by the Department of Fish and Game and thus subject to the provisions of the wetland policy are indicated on Plate 8.

1.26 The U.S. Fish and Wildlife Service has developed a habitat evaluation system to quantify the amount of compensation required for destruction of wildlife habitat. Appendix H, Document H-1, contains the results of the Wildlife Habitat Evaluation for each of the parcels in the Corps jurisdiction in East San Rafael. Plate 8 indicates the areas which the U.S. Fish and Wildlife service considers wetland. The evaluation method is explained in Appendix H, Document H-2. The U.S. Fish and Wildlife Service objects to the issuance of fill permits for any existing wetland if the proposed development is not water dependent. They also object to the issuance of after-the-fact permits for existing unauthorized fill unless compensation is provided according to the Wildlife Habitat Evaluation (Appendix H, Document H-3).

1.27 At this time, no mitigation agreement has been reached between the City of San Rafael and the wildlife agencies. Mitigation plans for individual permit applications are being reviewed by the Corps.

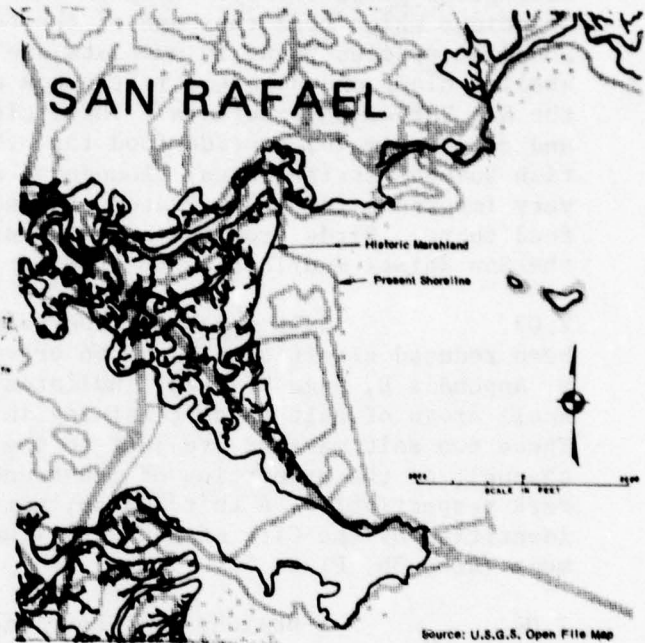
1.28 The San Quentin Disposal Company (Application No. 9344-47) has submitted a tentative habitat compensation plan to the Corps for their land in East San Rafael (parcels 8, 8A, and 8B Plate 8). This plan indicates that approximately 5.87 acres of property would be dedicated to the City of San Rafael which would include: the two ponds (parcels 8A and 8B) and a strip of land 100-feet wide along the Bay shore for the proposed shoreline park. The dedicated area immediately surrounding the existing ponds could provide parking for approximately twenty cars, and would provide direct access to the shoreline park. In addition, 6.81-acres of tidelands bayward of the levee would be dedicated to an appropriate public or private agency to protect the public interest in these lands. It is estimated that 300,000 cubic yards of material would be used as fill. (Appendix A, Document A-34).

1.29 Dr. Haskell Norman (Application No. 9441-47) has also submitted a tentative habitat compensation plan for parcels 5, 5A and 5B, Plate 8. The plan calls for public dedication of 9.70 acres comprised of 4.73 acres of submerged tidelands bayward of the levee and 4.97 acres of ponds and surrounding uplands (all of the northern pond labeled 5A, and a portion of the southern pond labeled 5B). According to the plan, a total of 3.6 acres (parcel 5 and a portion of 5A) under Corps jurisdiction would be filled for commercial development. Approximately 60,000 cubic yards of material would be used as fill.

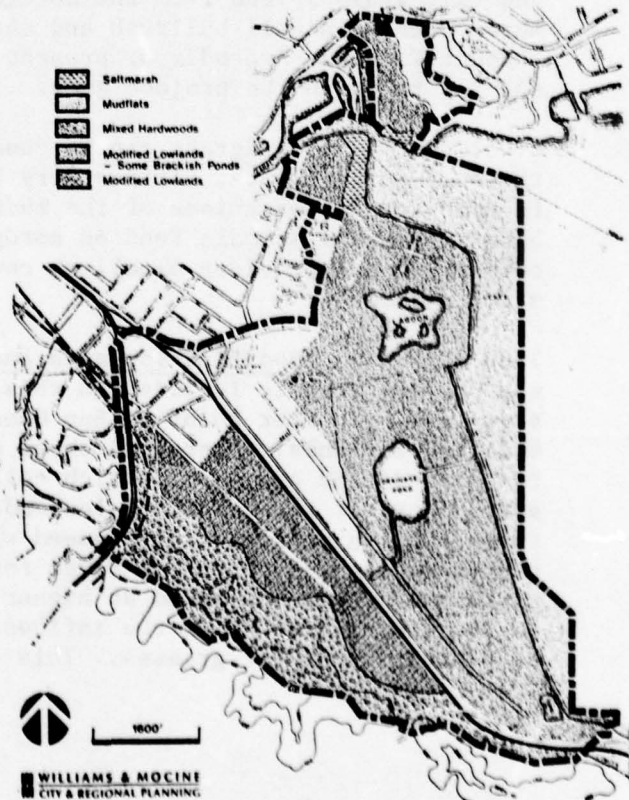
2.00. ENVIRONMENTAL SETTING
WITHOUT THE PROJECT

Physical Environment

2.01. Vegetation and wildlife (Pages VI-E-1ff, Appendix B). Prior to settlement by Anglo-Americans, the East San Rafael Baylands were characterized by marshlands and mudflats. Plate 3 indicates the relationship of the proposed development area to the areas of historic marshland. The East San Rafael area has been significantly altered by the activities of man. Much of the area is currently occupied by housing or commercial establishments and has undergone or is undergoing some form of development and/or land alteration. Despite the proximity of urban development, the East San Rafael Baylands area provides a unique and diverse setting used by a large variety of wildlife. Species that are rare elsewhere in the Bay region have been observed here, including the yellow-crowned night heron, white ibis, and parasitic jaeger. The portion of the East San Rafael Development Area to the east of Francisco Blvd. (the portion of the East San Rafael area with which this environmental statement is primarily concerned) is characterized by three types of biological habitat: mudflats, salt marsh, and modified lowlands with brackish ponds (Figure 9, Appendix B).



HISTORICAL SHORELINE (SEE PLATE 3)



BIOLOGICAL HABITATS
(SEE FIGURE 9, APPENDIX B)

2.02. Mudflats. Mudflats are of high value in terms of biological productivity. They provide the habitat for many of the organisms which form the base of the food pyramid. Among the more abundant species found in mudflats are various types of clams. Soft-shelled clams and Japanese littleneck clams are particularly abundant in the San Rafael Bay mudflats. These clams, and various worms, crustaceans, and other animals, provide food for other higher forms of life including fish such as striped bass, flounders, and sturgeon. Mudflats are also very important for the migratory and non-migratory bird species that feed there. Birds from the nearby West Marin Island heronry depend upon the San Rafael mudflats as their major feeding grounds.

2.03. Salt marshes. The salt marsh area of San Rafael Bay has been reduced significantly due to previous diking and filling. Figure 9, Appendix B, page VI-E-25, indicates that there are two relatively small areas of salt marsh remaining in the immediate project area. These two salt marshes are just to the north and south of the San Rafael channel, on the properties of Seastrand, and the expanded Pickleweed Park respectively. A third marsh, not shown on Figure 9, has been identified by the City of San Rafael near the Spinnaker Point development (area 3b, Plate 5).

2.04. A healthy San Francisco Bay area salt marsh has a vertical hierarchy of dominant plant species which is typified by cordgrass at the water's edge (often partially submerged); pickleweed and salt grass inland from the cordgrass; and at the upper edge of the marsh Jaumea, alkali bullrush and cattails are typical. Pages VI-E-12 through VI-E-17, Appendix B, present a summary of plant and animal species found in the project area.

2.05. Cordgrass can be considered to be the most important of the salt marsh plants. It has very high productivity and provides a food source for organisms of the mudflats and the water column. Many birds and small mammals feed on cordgrass seeds and/or foliage. The cordgrass also provides excellent cover for many marsh birds and mammals.

2.06. Modified lowlands and brackish ponds. The majority of the project area is included in this category. The diked and filled area from Spinnaker Point to San Quentin Point is almost entirely modified lowlands. There are three drainage district ponds, four year-round ponds and one lagoon which collect storm water runoff in this area. Most of the remaining lowlands are seasonally inundated. These areas contain stands of pickleweed which are not heavily used as a source of food, but provide cover for small mammals and birds. Salt grass and Jaumea are found at higher elevations adjacent to the ponds. In the area filled above the influence of salt water, the preponderance of plants are exotic grasses. This area provides food and cover for

many species of songbirds and small mammals. The ponds are used by waterfowl, wading birds, hawks, white-tailed kites and owls. Several species of duck nest in the area. Audubon Society members have observed 14 species of birds in the project area which appear on the Audubon Society's Blue List of American Birds, a list of potentially dangerous population decline (reference Appendix E, Document E-11).

2.07 The chain of seasonally wet marsh and runoff ponds immediately inside the diked and semi-filled area between the San Rafael Canal and Point San Quentin is a very rich area in terms of bird species diversity. As can be seen in Appendix C, at least 105 species of birds have been observed in the area between 1968 and 1975.

2.08. Usage by mammals of the lowlying areas and salt marshes is not as evident as by the birds but is, nonetheless, extensive. Small rodents are commonly found even where the cover is minimal. Skunks, raccoons and deer are found in denser cover.

2.09. Those parcels under Corps jurisdiction for which fill is proposed are described in greater detail below* (please refer to Plate 7 for parcel locations):

 a. Parcels 3, 3A(1) and 3A(2) (Application No. 12444-47) and 6B and 6C (Application No. 11403-47) have been filled. The area's value to wildlife in its present condition is minimal, although there is some rodent activity.

 b. Parcels 3A(3) (Application No. 12444-47), 4,4A (No Application), 5 (Application No. 9441-47), and 6A (Application No. 11403-47), are flooded during the winter rains. The area contains a dense stand of pickleweed with some fat hen and bare areas. During the dry months the area is used by small mammals, small birds, and insects. When flooded, the pond provides a feeding area for herons, egrets and avocets.

 c. Parcels 5A(Application No. 9441-47), 5B(No application), and 6(Application No. 11403-47), are two ponds with similar habitats. Pickleweed is found around the margins of both ponds providing cover for smaller animals. Mallards, common and snowy egrets, killdeer, Forster's terns, and barn swallows have been sighted feeding in the two ponds. Sparrows and other songbirds use the upland vegetation around the ponds.

* This survey is based on the "East San Rafael Habitat Study" prepared by Madrone Associates of Novato, California for the U.S. Fish and Wildlife Service, 1978.

d. Parcels 8A and 8B (Application No. 9344-47) are ponds surrounded by seasonally flooded wetlands supporting pickleweed and brass buttons. The southern half of this area is similar to that discussed in (c), while the northern half has been partially filled. The upland areas also contain some exotic weedy vegetation.

e. Parcel 7A (Application No. 9542-47) has been partially filled and supports upland weedy vegetation. The area provides food and cover for terrestrial birds and mammals. Marshland wildlife use is limited, although the site may be used by shorebirds during the highest tides.

f. Parcel 7 (Application No. 9542-47) is a filled site with upland vegetation. Limited seasonal flooding does occur, providing feeding areas for shorebirds.

g. Parcel 9 (Application No. 12255-47) is a seasonal pond similar to that described in (b), although it is dry for a greater part of the year.

h. Parcel 8 (Application No. 9344-47) is an ongoing excavation site which provides soil for the upland sanitary landfill. Ponds are created in the rainy season, and used by diving ducks.

i. Parcels 9A and 9B (No application) are seasonal ponds. Ducks, herons and egrets have been observed on the ponds as have mallard ducklings indicating that the area contains suitable nesting habitat. This area contains almost 100 acres and is used extensively by waterfowl. Audubon Society members have observed ninety-six species of birds at this site (Madrone Associates, 1978). The area provides a variety of habitats including ponds, mudflats and pickleweed stands. Herons and egrets that nest on the nearby West Marin Island feed extensively on the mudflats as do terrestrial birds and shorebirds. The area also contains a stand of pine trees which is used by terrestrial birds.

j. Parcel 11 (No Application) is a seasonal pond covered by a stand of pickleweed and brass buttons. The area is similar in use to that described in (i), but the observed species diversity is greater. One hundred six bird species have been sighted in this area. Canada geese have used the ponds as have black-necked stilts, a wading bird uncommon in North San Francisco Bay.

2.10 Rare and endangered species. The Endangered Species Act of 1973, Public Law 93-205, 16 U.S.C. Sec. 1531 et seq., provides for the conservation of endangered and threatened species of fish, wildlife, and

plants. California Department of Fish and Game personnel surveyed the East San Rafael area in March 1977 and found California clapper rail in the tidal marsh off Pickleweed Park (Parcel 11, Plate 7), and salt marsh harvest mice on parcels 9A and 9B, Plate 7 (Appendix E, Document E-7). The salt marsh harvest mouse may be present in the stands of pickleweed throughout the project site. Members of the Marin Audubon Society have recorded observing the California brown pelican in the project vicinity.

2.11. Hydrological conditions. The portion of the East San Rafael area lying north of San Rafael Creek slopes toward the Creek from a maximum elevation of 100 feet on the north and northeast boundaries. The property is cut off from San Rafael Creek by a levee running parallel to the shoreline. A culvert system connects the low end of the property to a drainage channel running in a southerly direction along the west side of the property. Floodflows coming onto the property and collecting at the low end are discharged to San Rafael Creek through this drainage system.

2.12. Most of the East San Rafael area lies south of San Rafael Creek. This area can be broken down into three major drainage units. One unit is the Spinnaker Point area of about 80 acres which drains to a 20-acre lagoon in the center of Spinnaker Point. A second unit drains to a large pond located between the sewage treatment plant and the sanitary landfill site. This pond receives drainage from an area of about 500 acres. The third unit lies at the southern extremity of the redevelopment area and involves a drainage area of about 150 acres. Two small interconnected ponds receive the surface runoff from this unit (Plate 2). The ponds in all three drainage units function similarly. An outfall line connects each pond to San Rafael Bay. Ordinarily storm runoff will be collected in the ponds and discharged to the Bay by gravity flow at low tide. In addition to the outfall line, there is a pump system for each pond which can be used to transfer water from the Bay to the pond or from the pond to the Bay.

2.13. During winter months precipitation and local runoff are the sources of water to the ponds. During the summer, water is lost from the ponds primarily through evaporation. Table 1, which summarizes rainfall data for San Rafael, indicates that there is no surface inflow to the ponds resulting from precipitation from June through October. If there is no subsurface inflow to the ponds, evaporation losses during the summer will result in a lowering of the ponds. However, water levels can be maintained either by pumping water from the Bay through the existing outfall lines or by tidal pumping (gravity flow through the outfall lines to the ponds at high tide levels).

2.14. In addition to the drainage ponds described above, there are a few low areas in the southeast portion of the redevelopment area which collect water. These four ponds have not been completely filled and are adjacent to the sanitary landfill operation and the small industrial area at the extreme south end of the redevelopment area. These ponds are hydrologically isolated from the Bay but do not dry up during the summer, except when the water is pumped out.

2.15. The project area is located within a flood-prone area as identified by the U.S. Geological Survey. That is, it is an area that may be inundated by a 100-year flood. The City of San Rafael, in conformance with the Flood Insurance Administration Program (FIA), administered by the Department of Housing and Urban Development, requires that construction projects submitted to the city for authorization be protected against the 100-year flood. The area to the southwest of Highway 17 drains in a northeasterly direction toward Highway 17 with the majority of the area's drainage being carried by an existing channel adjacent to the southeast side of the highway. The water from this channel is presently carried across the highway in three box culverts, and discharges into the low areas northeast of the highway. These areas are protected by the existing dike and a portion of the water discharges into the existing concrete lined channel in East San Rafael. The highway drainage is collected generally in the median areas and also discharges into this channel.

2.16. San Pablo Bay. The Bay is shallow near the project area and at low tide the mudflats are exposed. The back-and-forth movement of the tidal prism occurs twice daily with one cycle occurring approximately every 12 hours. In a 24-hour period there are two highs and two low tides with the large difference between the two cycles resulting in one low-low tide, one high-high tide, one high-low and one low-high tide. Tidal information for San Pablo Bay is provided on Page VI-C-6, Appendix B.

2.17. Extreme high water levels in the Bay could result from a tsunami. Tsunamis are long periodic waves usually caused by underwater seismic disturbances, volcanic eruptions, or submerged landslides. According to a Corps of Engineers Flood Insurance Study dealing with tsunami predictions for San Francisco Bay and other areas (Department of the Army, November 1975), a 100-year frequency tsunami runup at the project area would be 4.9 feet above mean sea level, and a 500-year runup would be 8.3 feet above mean sea level.

2.18. Groundwater. The project area is underlain by a thick layer of Bay mud which is in turn underlain by alluvium and bedrock (See figure on Page VI-B-12 of the EIR, Appendix B). There are no groundwater aquifers in the project area. The Bay mud layer has low permeability and high natural water content, however there is no significant movement of water through the Bay mud.

2.19. Water quality (Page VI-C-1ff, Appendix B). A summary of the water quality characteristics of Central San Francisco Bay is presented in Table C-3, Appendix B. Even though large quantities of municipal and industrial wastewater are discharged into Central San Francisco Bay, the freshwater outflow from the Sacramento-San Joaquin River Delta combined

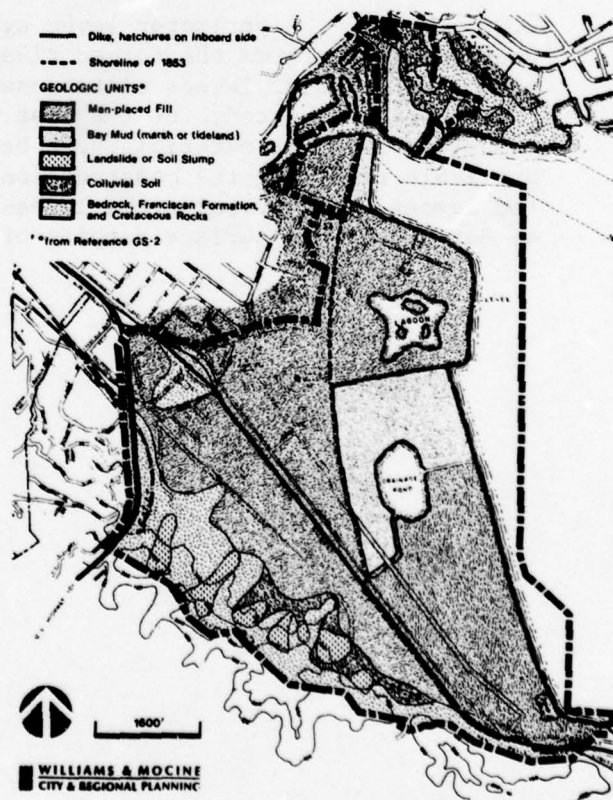
with tidal action tends to keep Central San Francisco Bay relatively free from water quality problems. Localized water quality problems are often associated with heavy metals buildup near industrial discharges and eutrophication in shallow backwaters.

2.20. The water quality in the ponded areas and the lagoon is influenced by the limited industrial development along Francisco Boulevard and Kerner Boulevard (Plate 4), and the sanitary landfill operation. Most of the water pollutants from the industrial area are automobile-related. The difference in finished fill elevation between the sanitary fill site and surrounding area may result in slightly more erosion.

2.21. Water quality samples of the drainage ponds and lagoon have not been taken, but estimates of the water quality conditions of these areas are presented on Pages VI-C-2 through VI-C-6 of Appendix B.

2.22. Geomorphological conditions (Page VI-B-1ff, Appendix B). The City of San Rafael lies at the southern end of the Northern Coast Range geomorphic province. The City is underlain by rocks believed to be 70 to 120 million years old. The primary rock types are graywacke, sandstone, shale, chert, volcanics and serpentine. In the East San Rafael area, the rocks are categorized geologically as the Franciscan Formation and Cretaceous sedimentary rocks.

2.23. Figure 4, page VI-B-10, Appendix B, indicates that the project area is dominated by areas which have already been filled. The predominant unfilled portion of the site is Bay Mud. Bay Mud is often considered to be one of the most troublesome deposits in the Bay Area from the soil mechanics and foundation engineering viewpoints. The foundation problems stem from the clay in the mud which has a high natural water content, is quite plastic and weak, and is consequently highly compressible under imposed loads. These properties are, in a large measure, a reflection of the minerals in the contained clay which swell and become plastic in the presence of water, and consequently have caused the deposits to have a very low density.



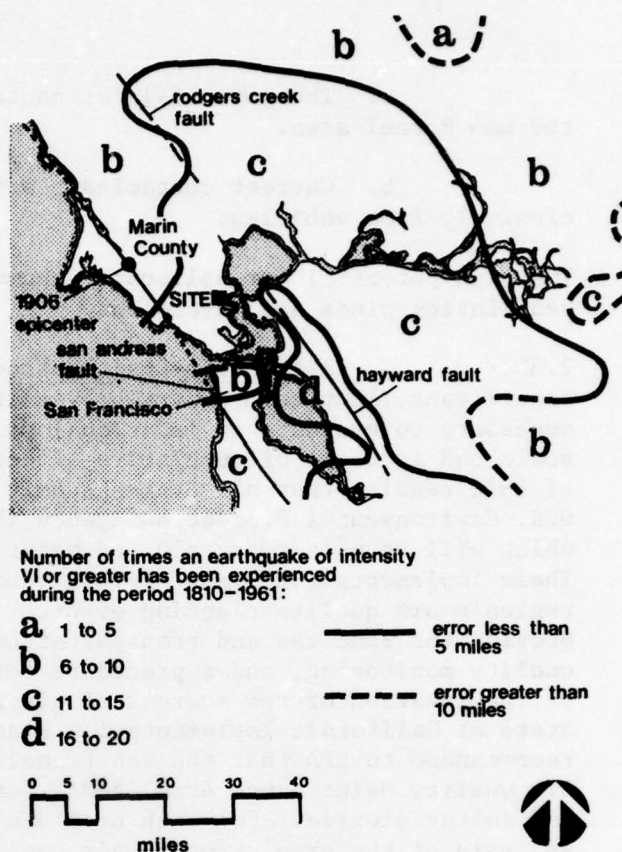
GEOLOGIC UNITS
(SEE FIGURE 4, APPENDIX B)

2.24. Soils and other surface materials. The project area is essentially a portion of San Francisco Bay tideland which was diked off from the Bay and developed in several phases of filling. Figure 4, Appendix B, (page VI-B-10) indicates the approximate location of the shoreline in 1853. Most of the fill in the project area has been placed since about 1950.

2.25. The majority of the land involved in the activities considered in this environmental statement is to the east of the 1853 shoreline. The Bay Mud in this area is approximately 60 to 80 feet thick, with the thickness decreasing to zero at contact point with bed-rock. A cross section of the Bay Mud deposits and the remainder of the project area is presented in Figure 6, Appendix B (page VI-B-12). For much of the area east of the 1853 shoreline, the Bay Mud is overlain by fill materials. The southern portion of this area has been utilized for a number of years as a sanitary landfill site. Materials placed in the landfill consist of residential and commercial refuse as well as debris from various construction operations.

2.26. A perimeter levee system along the eastern and northern boundaries separates the former tideland areas from San Francisco Bay with some interior levees also present. The levees are believed to have been constructed, for the most part, of Bay Mud materials although a variety of other materials have been used. Little information is available regarding the construction techniques and materials used in the levees. In several areas levees are known to have been constructed of Bay Mud with a surface capping of rockfill.

2.27. Seismicity. The project area lies in a seismically active area which is subject to earthquakes from several active faults. The closest known active fault is the Hayward Fault which lies approximately six miles eastward of the site. The Rogers Creek Fault to the north may be a continuation of the Hayward Fault. The San Andreas Fault, which lies about ten miles westward, is considered capable of generating the most damaging earthquake for the study area. Figure 7 (Page VI-B-13) of Appendix B indicates the intensity of ground shaking known to have occurred in the period 1810 to 1961. The intensity of VI referred to in Figure 7 comes from the Abridgeo Wood-Neumann Scale of Earthquake Intensities (also known as the Modified Mercalli Scale). Table 3 is a description of this earthquake intensity scale.



EARTHQUAKE INTENSITIES
(SEE FIGURE 7, APPENDIX B)

2.28. Climate and air quality (Page VI-D-1ff, Appendix B). The climate of any part of the San Francisco Bay Area is moderated by proximity to the Pacific Ocean. The project area is characterized by the typically mild climate of the surrounding area. During the year there are essentially two seasons, a dry-warm period from May through October and a wet-cool period from November through April. In San Rafael, mean mid-summer temperatures range between 80 and 90 degrees F, while mean mid-winter temperatures are about 30 to 40 degrees F, with occasional periods of frost. In the rainy season 28 to 35 inches of precipitation is typical.

2.29. A report by the Technical Services Division of the Bay Area Air Pollution Control District (1972) has assessed the impact of growth on the air quality of Southeastern Marin County. Two conclusions of this report should be given consideration in terms of attempting to evaluate the probable impact of the proposed projects:

a. The potential for contaminant accumulation is high in the San Rafael area.

b. Current contaminant concentrations result almost exclusively from vehicles.

The high potential for pollutant accumulation is due to the lack of ventilating winds and inversions.

2.30. Air quality maintenance planning. In order to realize significant, long-term controls over air pollution problems, it is necessary to evaluate an individual project's impact on a region-wide scale and in terms of cumulative affects. The Clean Air Act Amendments of 1970 require that all States submit an Implementation Plan to the U.S. Environmental Protection Agency (EPA), explaining control strategy which will be used to attain and maintain ambient Air Quality Standards. These Implementation Plans are the vehicles for drawing together a region's air quality planning efforts. Elements of the Plans must provide for land use and transportation controls, source monitoring, air quality monitoring, and a procedure for review, prior to construction, of the location of new sources of air pollution. In a revision to the State of California Implementation Plan the State Air Resources Board recommended to EPA that the San Francisco Bay Area be designated as an Air Quality Maintenance Area (AQMA) for particulate matter, oxidants, and sulfur dioxide. For each area designated as an AQMA, a detailed analysis of the area's future air quality will be performed. If this detailed analysis confirms that a national standard will not be maintained through 1985 or by 1980, a long-term maintenance plan will be developed. EPA and other air quality oriented agencies will review the air quality impact of the subject activities in light of these plans.

Social Environment

2.31. Demography. The major portion of the East San Rafael Baylands project lies within the boundaries of U.S. Census Tracts 1122 and 1102, which had populations in 1970 of 3,387 and 4,054 respectively. A Special Census in March of 1976 showed 4,749 inhabitants in Tract 1102, an increase of 17 percent.

2.32. The mean and median incomes for Tract 1122 residents are 73 percent of the comparable County-wide figure. Approximately 50 percent work within Marin County while 29 percent commute to San Francisco. The percentage of professional workers in Tract 1102 is much greater than in the other tract, with corresponding lower numbers of people employed in blue-collar, sales, and service-oriented pursuits.

2.33. Census Tract 1122 residents are more mobile than those of the entire City of San Rafael. Only 15 percent were reported to be living in the same unit in 1970 as in 1965 compared to the City average of 40 percent. Much of this characteristic is due to the area providing 40 percent of the multi-family housing (two or more units) in San Rafael and a large portion of the multi-family housing for the entire County.

2.34. Public services. The project site lies within the service area of Pacific Gas and Electric Company (PG&E), which supplies natural gas and electricity to the region. Electrical lines and gas mains were placed underground along Canal Street in 1964, but these have never been used.

2.35. The Marin Municipal Water District (MMWD) provides water for the project area as well as for most of southeastern Marin County. The entire water supply comes from surface runoff in the Lagunitas and Nicasio watersheds (29,990 and 22,430 acre-feet respectively). Each has reservoirs or lakes where the water is held until treatment and distribution. Because of the great variability in annual rainfall and subsequent runoff into the reservoirs or lakes, the continuously available supply of water over a long time period is less than the total storage capacity of the reservoirs or lakes. The present consumption rate is approximately 25,000 acre-feet per year in the District.

2.36. The San Rafael Sanitary District is responsible for wastewater treatment in the project area. Currently, the district is part of the Central Marin portion of a wastewater management plan the Environmental Protection Agency is studying for Eastern Marin and Southern Sonoma Counties. The sanitary district facilities may be enlarged or abandoned for area consolidation. At this time, only preliminary plans exist and there are seven alternatives for the area. The existing San Rafael Sanitary District plant, providing intermediate secondary treatment, is located to the southwest of the proposed Spinnaker Point development. Dry weather capacity is 5,000,000 gallons per day (mdg), or 78 percent of the present plant's capacity. During wet weather a bypass is used and effluent is not treated.

2.37. The Marin Sanitary Service includes the project site in its service area. Solid wastes are taken to the Redwood Sanitary Landfill north of Novato. The service contract was renewed in 1974 for another 20 years. Telephone service is provided by the Pacific Telephone Company, while Televe Cable I.U. Company provides cable service to the project area adjacent to the proposed Spinnaker Point development.

2.38. The San Rafael Police Department has jurisdiction over the project area; fire protection is provided by the San Rafael Fire Department. The closest station is Fire Station #4 on Castro Street (Plate 5), about one-fourth mile to the southwest. Water connections near Spinnaker Point already exist, due to a project originally proposed in the area (San Rafael Cayes Unit One).

2.39. Marin General Hospital, Ross General Hospital, Novato General Hospital, and the Kaiser-Permanente Medical Center serve the area. Ambulance service is provided by private firms under contract to Marin County. Dispatching is performed by the County Communication Center, with the Fire Department providing assistance when ambulances are not available.

2.40. Bahia Vista Elementary School, Davidson Middle School, and San Rafael High School are located in the project area, providing complete coverage of all grades. Library service is provided by the San Rafael Public Library and the Marin County Library System.

2.41. Transportation (page VI-I-1ff, Appendix B). The project site comprises the southeast area of San Rafael and is bordered by the city limit on the south, Bellam Boulevard on the west, Playa del Rey and the San Rafael Canal on the north, and San Pablo Bay on the east (see Plate 5). Major streets serving the area include Bellam Boulevard, providing access to adjacent residential areas; Anderson Drive, connecting the frontage streets to U.S. Route 101; Kerner Boulevard, functioning as a collector street connecting to Bellam Boulevard and Canal Street; Canal Street, connecting Francisco Boulevard to the east side of U.S. Route 101; Medway Road, functioning as a collector street in conjunction with Canal Street; Francisco Boulevard, serving as a major circulation route between central San Rafael and existing development along U.S. Route 101 and State Route 17; State Route 17, connecting San Rafael with Richmond; and U.S. Route 101, serving as the major circulation route in Marin County. See Table I-1, Appendix B for the existing levels of traffic on the aforementioned streets.

2.42. Bus service is provided by the Golden Gate Transit District to the project area. Two routes link San Rafael with San Anselmo and Fairfax to the west and San Francisco to the south.

2.43. Historical and archeological resources. In compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470(f)) the most recent listing of the National Register of Historic Places (Federal Register, 7 February 1978 with monthly supplements through January 1979) has been consulted and determination has been made that no National Register property nor property eligible for inclusion therein is affected by the project.

2.44. In compliance with Executive Order 11593 of 13 May 1971, the State Historic Preservation Officer was contacted by letter on 3 March 1977 to determine if there are any State Historical Landmarks or State Points of Historical Interest which would be affected by the project. None were identified.

2.45 Most of the project site is reclaimed land, behind a dike constructed in 1956. Plate 3 indicates that the northern portion of the project area (site of the Seastrand residential development) and the western edge of the area under consideration were formerly tidal marshes. An archaeological survey performed at the San Quentin Landfill site (Application No. 9344-47) (Appendix J, page J-A-16), found no evidence of prehistoric or historic cultural activity on the site. No surveys of cultural resources have been done for the remainder of the project area. Surveys done on surrounding upland areas have indicated the presence of prehistoric sites.

Economic Environment (Page VI-L-Iff, Appendix B)

2.46. Manufacturing. In 1973 slightly under one-half of Marin County's manufacturing employment was in San Rafael, or approximately 2,000 workers (see Table Ec-9, page VI-L-14, Appendix B). In 1976 the number of workers decreased to 1,700, and annual production man-hours dropped from 2,900,000 to 1,900,000 during the same period. However, the value of the manufactured products increased from \$33.6 million to \$36.7 million.

2.47. Wholesaling. The wholesale trade employed 600 people in 56 firms in 1963, increasing to 1,500 people in 97 firms by 1972 (see Table Ec-4, page VI-L-9, Appendix B). This figure represented approximately two-thirds of Marin County's wholesale employment. Sales volumes increased only slightly from 1963 to 1967 but increased by 79 percent from 1963 to 1972.

2.48. Retailing. Retail trade in San Rafael employed approximately 2,000 people in 1963, increasing to over 4,000 people by 1972. Retail sales increased approximately 5.5 percent per year during this period, with little change in growth expected for the future.

2.49. In Table Ec-11, page VI-L-16, Appendix B, a distinction is made between convenience goods and shopper's goods. The former tend to be sold near places of residence, while customers tend to go to major purveyors for shopper's goods. In 1974 San Rafael accounted for about 50 to 70 percent of the County's total shopper's goods sales.

2.50. Table Ec-12, page VI-L-17, Appendix B shows the change in numbers of permits for retail sales in San Rafael from 1970 to 1975, as well as the sales in current dollars, by type of store. The number of

apparel and packaged-liquor stores declined, as did the number of gasoline stations. There were increases in the number of permits for all other listed types of outlets. The largest increase in dollar volume over the five-year period appears to have been registered by the service stations. The smallest rate of growth of sales appears to be attributable to the drug stores, with an increase of only 15 percent (current dollar items) in the five years.

2.51. Housing. The average value of housing in Census Tract 1122 was approximately \$22,000 in 1970. However, the value of owner-occupied housing was over \$50,000 compared to San Rafael's \$38,000. Of 1,589 housing units, 1,150 are located in multi-family complexes of five to 49 units, most of which were constructed during the past ten years.

2.52. The average value of housing in Census Tract 1102 was approximately \$48,000 in 1970. Ninety-nine percent of the housing is of the single-family type, built primarily during the 1960's of which 92 percent were owner-occupied, compared to eight percent for Census Tract 1122. The current tax rate for the tract is higher than Tract 1122.

3.00 RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS

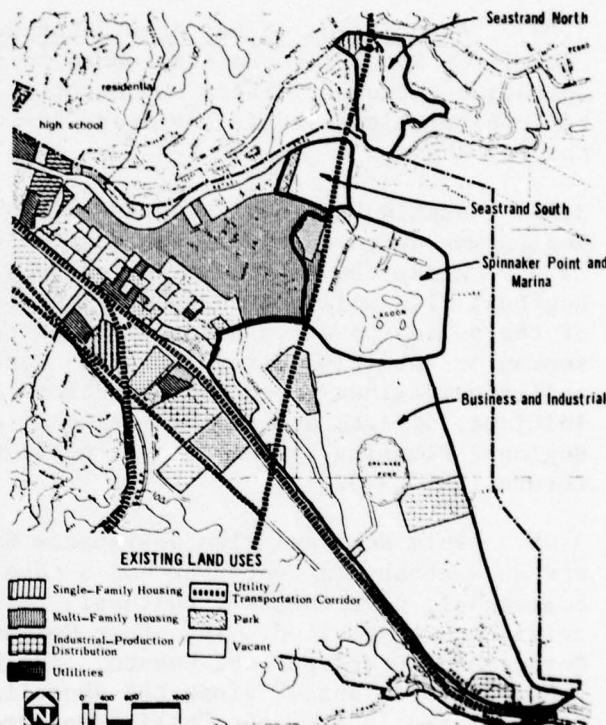
3.01 General. This section will discuss current land uses in the proposed project areas and the uses planned by the various agencies that have jurisdiction over the area.

3.02 Current Land Use
(Appendix B, pages VI-H-Iff).
The East San Rafael area can be divided into four subareas (Plate 4) for existing land uses purposes. All four are former baylands that have been diked off from tidal action and filled to present elevations.

a. The 31-acre site north of San Rafael Canal, proposed to be developed as Seastrand, is marshland and steep hillside. The area is generally vacant except for some residential development, as shown on Plate 4.

b. The 25-acre site south of San Rafael Canal, proposed as an extension to Pickleweed Park is primarily partially filled marshland. The site has been used for some dredge disposal and is vacant except for some power lines. The site will be graded and developed for park and marsh uses.

c. Spinnaker Point is a 100-acre site proposed as a water-related housing project. The area is now primarily vacant although some utilities and streets have been installed.



EXISTING LAND USES (SEE PLATE 4)

d. The largest section is approximately 530 acres south of the lagoon and east of Highway 17 (Plate 4). This is where most of the current Corps permit applications are located. About 150 acres are developed in industrial uses and there are also some retail uses, a post office, sanitation treatment plant, bus yard, drive-in theater, and fire station. These uses are generally concentrated in the northwest corner of the East San Rafael area.

3.03 Association of Bay Area Governments (ABAG). ABAG is a voluntary council of local governments formed to meet regional problems by co-operative action of cities and counties. ABAG works toward solution of regional problems and is the area-wide comprehensive planning agency for the Bay Region.

3.04 ABAG's "Regional Plan 1970:1990" for the San Francisco Bay Region was approved by the Association's General Assembly on 30 July 1970. Unlike the general plans adopted by cities and counties, this Regional Plan will not be used as the basis for any detailed application of the policy power on a parcel-by-parcel basis, as in the making of zoning or subdivision regulations. Rather, the Plan provides regional policy guidelines to encourage actions by appropriate agencies that will initiate, direct, and promote regional growth and development of the Regional Planning Framework as a guide to regional planning in the future (ABAG, 1970).

3.05 This Regional Plan designates San Rafael as a Community Center, and as such should center around a core of intense activity where commercial, governmental, cultural, recreational, health, and education services are provided. The other Community Centers in Marin County are Corte Madera-Larkspur and Novato. The baylands area of San Rafael is shown as "open space" along the shoreline "predominantly residential" north of the lagoon, and "basic employment" south of the lagoon (Plate 4 shows the lagoon site).

3.06 San Francisco Bay Conservation and Development Commission (BCDC). The BCDC was created by the McAteer-Petris Act in 1965. The Commission consists of 27 members representing Federal (2) and State (5) agencies, Bay Area Counties (9), cities (4), and the public (7). The Commission was created as a limited regional government agency specifically authorized and directed to carry out the Bay Plan and is empowered to raise sufficient funds for this purpose.

3.07 The "San Francisco Bay Plan" has been in effect since 20 September 1968, the date of its approval by BCDC. The Plan was adopted into law on 7 August 1969, when the Governor signed the McAteer-Petris Act.

Operating under the McAteer-Petris Act and the Bay Plan, BCDC has been generally regarded as an example of a successful regional planning agency with adequate regulatory powers. The objectives of the Bay Plan are to protect the Bay as a great natural resource for the benefit of present and future generations and to develop the Bay and its shoreline to their highest potential with a minimum of Bay filling (BCDC, 1969).

3.08 In East San Rafael, BCDC jurisdiction applies only to the 100-foot strip inland from the main levee. The Bay Plan has no priority designation for this area as long as maximum public access is allowed. Since the Redevelopment Agency's plan is to leave a 100-foot open space strip along the bay, this plan does not conflict with BCDC's Bay Plan. In addition, the San Francisco Bay Plan segment of California's Coastal Management Program was approved by the Secretary of Commerce on 16 February 1977, under the authority of Section 307 (c) and (d) of this act which requires that all Federal activities be consistent to the maximum extent practicable with the approved San Francisco Bay Plan. Also, all Federal licenses and permits affecting the coastal zone of the Bay are to be certified for consistency with the program approved by BCDC before the license or permit can be issued.

3.09 Marin County. The Marin Countywide Plan was adopted by the Marin County Board of Supervisors on 30 October 1973. The three basic goals of this plan are to: discourage rapid or disruptive population growth, but encourage social and economic diversity within communities and in the county as a whole; achieve greater economic balance for Marin County by increasing the number of jobs and the supply of housing for people who will hold them -- becoming more self-sufficient economically by reducing the present heavy reliance on the commute to San Francisco; and achieve high quality in the natural and man-modified environment, through a balanced system of transportation, land use, and open space.

3.10 East San Rafael has been designated developable. The plan also shows urban open space along the shoreline.

3.11 It should be noted that while the Countywide Plan is legally binding on unincorporated areas, it serves only as a guideline to incorporated areas, and is thus a guideline for East San Rafael development.

3.12 The City of San Rafael. The City of San Rafael General Plan was adopted in October 1974 and was designated to identify developmental goals of the City. The Plan works with land uses, governmental services and facilities, circulation systems, and community objectives to direct planned and environmentally sound growth.

3.13 The plan divides the baylands area into water-oriented along the shore and around the canal, residential and open space near the lagoon, and business and industrial south of the lagoon.

3.14 San Rafael Redevelopment Plan. The City of San Rafael has created a comprehensive plan for the San Rafael area. The Central San Rafael Redevelopment Plan, which comprises all of San Rafael, is still in the development plan stage. Because of public and developer interests in decisions for the East San Rafael area, a Policy Statement (Appendix D) and a Final Environmental Impact Report (Appendix B) have been developed by the San Rafael Redevelopment Agency for the East San Rafael portion of the Central San Rafael Redevelopment Plan. In general, the permit applications that have been filed with the Corps are consistent with the plan as presented in the Policy Statement. Differences with the Plan are covered in paragraphs 1.10ff.

3.15 The East San Rafael Plan is very general but does have specific ideas for large sections of the east baylands as well as general uses in these sections. The Plan tries to satisfy a wide range of opinions as to the value and utility of the bayfront as a resources for industrial use, housing, recreation, marina, commercial, dredge spoils area, open space and/or wildlife habitat. These general land uses are shown on Plates 5 and 6 and include housing, marina, industry, fringe retail, and open space.

3.16 Summary. From this brief discussion of the various plans that concern the East San Rafael area, it is apparent that the development of the baylands is in general conformance with current regional and local plans studied. A few of the developments proposed by permit applicants conflict with the City of San Rafael's Policy Statement for East San Rafael. The City has indicated it intends to enforce the Policy Statement through its authority to issue zoning, fill and subdivision permits.

4.00. THE PROBABLE IMPACTS OF THE PROPOSED ACTION ON THE ENVIRONMENT

Physical Environment

4.01. The impact of the proposed project was evaluated for the effect of filling and construction, residential and commercial activity and the cumulative effects of development in the project area. Impacts expected from the San Quentin Landfill project are also discussed in Section 4 of Appendix J.

4.02. Impact on vegetation and wildlife (Page VI-E-6ff, Appendix B). Significant impact on the vegetation and wildlife of the project area occurred historically with the diking and filling of large areas of marshland and the removal of water area. The six proposed activities (paragraph 1.10ff) which require Department of the Army permits are primarily in the areas described in paragraph 2.06 as "modified low-lands." The tidal salt marshes in the East San Rafael Redevelopment area would not be directly involved in any construction.

4.03. The proposed activities would have impacts on vegetation and wildlife resulting from filling and secondary impacts resulting from construction and residential and commercial uses. Existing plant and animal communities would change significantly.

4.04. Impacts of filling and construction. Filling activities would destroy about 51 acres of wetland habitat and prevent the potential upgrading of these areas. The historic reduction of the wetland areas increases the value to wildlife of these remaining vestiges. Habitat used by migrating birds along the Pacific Flyway and wintering birds would be destroyed. The heronry on West Marin Island would also experience an adverse impact because the birds are dependent upon nearby feeding sites to nest and raise offspring. Runoff from filled areas during and after construction would result in an increased amount of silt being released into waterways and this could result in the suffocation of benthic animals. Although no construction activity would take place in tidal salt marsh and mudflat areas. Pressure would increase on those areas both from displaced wildlife and increased human contact.

4.05. Impacts resulting from residential and commercial activity. The secondary impacts resulting from use of the filled areas could ultimately be the most significant. Urban runoff, if not carefully controlled, could destroy nearshore mudflat inhabitants. Silt, oils, greases, and fertilizers all could have an adverse impact on the areas of salt marsh and mudflats. If mudflat organisms are destroyed, birds would have their available feeding area decreased. Destruction of or damage to the salt marsh areas would result in an overall loss of biological productivity for the area. Increased human activity in the area could result in direct human encroachment on the salt marsh and mudflats.

4.06. Impacts on rare and endangered species. The proposed filling would destroy wetland habitat used by the salt marsh harvest mouse. The project will indirectly impact the California clapper rail by increasing human activity near the existing tidal marshes (area 3b, plate 5 and figure 9, Appendix B, page VI-E-25). The embayment proposed for parcel 9A (see paragraph 1.15) will create habitat suitable for the California clapper rail, however it would result in a net reduction in salt marsh harvest mouse habitat. No impact upon the California brown pelican is anticipated.

4.07. Cumulative impacts. The subject East San Rafael area has already been altered by man. The proposed projects considered in this Environmental Statement would result in another significant change in the biological character of the area. The project area is now essentially open-space and provides habitat for many wildlife species. Implementation of the proposed activities would "urbanize" the area and would result in the conversion of a portion of the "natural" environment.

4.08. Hydrological impacts. The proposed activity would result in various changes in the drainage patterns of the immediate project area.

4.09. Impacts of filling and construction. Filling and development activities result in changes in drainage patterns. Paved surfaces will increase both the velocity and amount of run-off into the drainage ponds. This impact can be minimized with careful project planning. Ponding areas will provide run-off storage from upland sites which will reduce flood hazard.

4.10. Impacts resulting from residential and commercial activity. Increased urbanization of an area generally results in increased velocities for runoff. If drainage plans are properly designed, this impact would be minimal.

4.11. Cumulative impacts. Changes in the hydrological patterns for the area could have an adverse impact on flooding of Highway 17. The California Division of Highways states that "...it appears that some flooding of the Highway 17 right-of-way has already occurred due to filling in the vicinity" (Resources Agency of California, November 1973). The State goes on to say that the permittee should be cautioned that reducing the ponding area for floodwaters without an adequate pumping facility may increase flooding of Highway 17, for which "...the permittee could be liable."

4.12. Any areas not filled above 4.9 feet mean sea level (or protected by levees to this level) could be subjected to damage by a 100-year frequency tsunami. Elevations above 8.3 feet mean sea level must be maintained to protect from a 500-year frequency tsunami.

4.13. Impact on water quality. Water quality problems resulting from the proposed activities would affect the ponded areas, the lagoon, and San Francisco Bay.

4.14. Impacts of filling and construction. The impacts of filling activities on water quality would primarily be short-term, with the long-term impact being a relatively minor increase in sediments released into the water areas. Erosion from construction sites is probably the greatest source of sediment per unit of land. Sediment yields from construction areas vary from two to 200 times greater than yields from naturally vegetated areas. The projects which are the subject of this environmental statement would primarily be constructed on relatively level land where erosion is not as critical a factor as it might be for similar activity on steep slopes. Water quality problems in the ponds, the lagoon, and the Bay are not expected to result from the filling activity, particularly if some type of erosion control measures are used during construction. As the refuse materials disposed of at the San Quentin Landfill site (parcel 8, Plate 7) are non-soluble nondecomposable solids, the impact upon surface and ground water quality from this site is not expected to differ from the other sites. The sanitary landfill operation operates under a permit issued by the San Francisco Regional Water Quality Control Board.

4.15. The system of cells designed for the San Quentin Landfill would prevent runoff or leaching of water into the Bay. The low permeability of the Bay Muds should provide adequate protection from movement of contaminants from the refuse fills into the groundwater or adjacent surface water. The proposed height of the dikes would preclude any overtopping by floods. There would be some danger of a wave topping the levee if a 200 or 500-year tsunami arrived on a high tide. However, this impact would not be significant because each foot of wave would be dissipated in one hundred feet of horizontal surface, and the project area begins 100 feet back from the shoreline and would have a shoreward elevation of at least 6 feet above the final elevation of the levee (Bernhard, February 1975).

4.16. Impacts resulting from residential and commercial activity. Once the project site is "urbanized," increased water pollutant levels would result for all adjacent water bodies. Mass loading rates for urban areas are estimated to be ten times greater than those for rural areas. Table C-5 (Appendix B, Page VI-C-8) compares the completed project conditions to existing conditions relative to the impacts of pollutant loadings on the drainage ponds. Under completed project conditions, there is a potential for water quality problems for all three ponds in the general project area.

4.17. Cumulative impacts. The most significant impact on water quality resulting from all of the subject activities would be the introduction of "urban" pollutants into an area which is currently relatively free from this type of water degradation. Because of the urbanization of presently vacant areas, runoff into all three water bodies on the site would add contaminants not now present with the result being greater potential for algal growth.

4.18. The impact on the ponds and lagoon could be minimized by using the existing pump systems (which pump water into the lagoon during the dry months in order to replace water lost through evaporation) to flush out and circulate pond and lagoon water on a year-round basis.

4.19. Geological impacts (Page VI-B-5ff, Appendix B). A relatively large scale fill and development project such as the subject activity can be affected in various ways by geological phenomena. The General Plan for the City of San Rafael requires that an independent Geotechnical Review Board, composed of a soils engineer, geologist, and structural engineer, approve all designs and plans before a building permit is issued.

4.20. Impacts of filling and construction. The flat portions of the site, consisting of former marshlands and tideland areas, would be subject to significant settlement because of the compressibility of the underlying bay mud. Thick bay mud areas can experience settlement, once filled, for more than 100 years.

4.21. The solid waste disposed in the sanitary landfill will slowly decompose, resulting in additional settlement in this area. This additional settlement can be as much as several feet, depending on the thickness, composition and degree of compaction of the solid wastes. Also, the additional settlement may impose limitations on the types and sizes of buildings that can be constructed in this area. Any potential problems such as leaching or gas generation will be assessed by the Geotechnical Review Board. Development plans must also comply with State and Federal Regulations for construction on landfill sites. Differential settlement may occur as a result of earthquake-induced ground failure. In such cases, severe damage to structures in the area can occur.

4.22. The entire area is still undergoing settlement as a result of the fill already in place. The settlement anticipated as a result of current loads is estimated to be less than 2 feet. Placement of additional fill and structures would result in additional settlement. The bulk of such settlement is likely to occur over the next 20 to 50 years. Cumulative impacts on structures and utility lines in the area can be significant. Existing structures and water lines have already been affected by settlement of prior fill and development.

4.23. Impacts related to residential and commercial activity. Any new construction and related "urban" activity in an area with a high potential for earthquakes such as the Bay Area requires evaluation in terms of the types of hazards involved. Liquefaction, lateral spreading, differential settlement and earth lurching are potential hazards for the project area. The site is not expected to be ruptured by surface faulting.

4.24. Cumulative impacts. The project area has already been extensively filled and additional filling is proposed. This entire area is subject to settlement.

4.25. The possibility of structural damage and human injury resulting from earthquakes is a very real possibility for any site in the Bay Area. All measures possible should be taken to "earthquake proof" the structures which would eventually be constructed in the proposed project area.

4.26. Impact on climate. The proposed projects would have a very minimal impact on climate. Urbanization of an area can result in minor changes in wind and temperature patterns. These would be very localized and could not be considered significant.

4.27. Impact on air quality. Various aspects of the proposed activities would have an impact on air quality. The primary impact would result from increased vehicle use in the area. Appendix B, page VI-D-7ff, notes air quality impacts from construction and development in East San Rafael.

4.28. Impacts of filling and construction. The primary air quality impact resulting from filling would be due to emissions from construction vehicles and equipment. These emissions would include engine exhaust and fugitive dust generated by wheels and tracks grinding surface material. An overview of air quality impact resulting from construction activity is given in Table AQ-4 (Appendix B page VI-D-9). The air quality degradation resulting from construction activity would be temporary.

4.29. Impacts related to residential and commercial activity (Page VI-D-7ff, Appendix B). Motor vehicle traffic generated by residential and commercial development would be the source of the most significant air quality impacts from the proposed activities. In general, the large volumes of traffic which would result on major roadways such as Highway 101 and Highway 17 could result in violations of air quality standards for points immediately adjacent to those roads. On days of adverse meteorological conditions (little horizontal and vertical air movement) that enhance pollution accumulation, the roadside levels of carbon monoxide would probably exceed the one-hour Federal Standard of 40,000 micrograms per cubic meter, along the roads handling peak-hour volumes of 2,000 vehicles. This would be particularly true at points where there is significant congestion.

4.30. The nitrogen oxides and reactive hydrocarbons attributable to the East San Rafael area would have a very minor effect on increasing photochemical oxidant levels downwind of the release points. The areas of heavy traffic would occur from 6 A.M. to 9 A.M. in the area.

4.31. Cumulative impacts. The most significant cumulative impact of the projects would essentially be the creation of a new "urban" area which would be a continuing source of air pollutant emissions. The Air Quality Maintenance Planning efforts discussed in paragraph 2.30 of this environmental statement are the mechanisms which will, hopefully, serve to evaluate the "big picture" and thereby define the impacts of each increment of urbanization in the area.

Social Environment

4.32. Demographic impacts. A small population will settle in the presently uninhabited East San Rafael Baylands site. This population will tend to be a high-income group. While they will contribute much to the local social and economic base, it is probable that the majority of the new residents will not find employment in the City of San Rafael but will commute elsewhere in the Bay Area.

4.33. Incompatibility between the existing lower income households of San Rafael, just north of Bellam Boulevard and west of Spinnaker Point, and the new high-income enclave of Spinnaker Point, can only be speculated upon.

4.34. Public service impacts. Daily natural gas and electrical requirements for the proposed project are shown in Table En-2 (Appendix B, page VI-0-4). Area wide, approximately twice as much residential energy is provided by natural gas than by electricity, indicating a greater demand for a limited resource. PG&E has indicated that energy requirements for the development can be met.

4.35. The moratorium on water connections for Marin County was amended in March 1978 to permit new construction until 1,120 acre-feet of water demand has been added to existing consumption. It is not expected that the 1,120 acre-feet limit will be reached until approximately 1983. No water consumption estimates have been made for the East San Rafael Development. Consumption will depend upon the specific land uses. New developments within the water district will probably be required to install low flow plumbing fixtures and efficient irrigation systems. Drought tolerant landscaping is also usually required in areas outside reclaimed water use areas.

4.36. Wastewater from the proposed industrial park will be approximately 180,000 gallons per day, while sewage from the proposed Seastrand development and from the proposed Spinnaker Point development will add over 90,000 gallons per day. The San Rafael Sewage Treatment Plant has indicated that the proposed project can be accommodated in the present system, since the treatment plant will only be operating at 80 percent of its capacity. Solid waste will be disposed of at the Redwood Sanitary Landfill in Novato.

4.37. Police and fire protection should not be a problem, especially due to the proximity of Fire Station #4. However, some areas such as linear parks, storage facilities, and walkways may be difficult to patrol. Potential traffic problems could slow down police and fire protection to the area. The impact on public schools should not be significant since only approximately 100 students would be added to the current system.

4.38. Transportation impact (Page VI-I-7ff., Appendix B). Proposed developments in the East San Rafael Baylands Development area include: townhouses, waterside residential units, commercial-recreational uses in the Spinnaker Point project; one smaller residential development at Seastrand, north of the Spinnaker Point area; extensive industrial development on both sides of Highway 17 south of Bellam Boulevard; park areas along the San Pablo Bay and in the expanded Pickleweed Park area. This traffic analysis covers the expected traffic generated by the entire development area. As the applicants for Corps permits do not have detailed development plans, site specific traffic data are not available. This analysis puts the project cumulative impact in reasonable perspective.

4.39. The traffic generation of these developments is estimated as follows*:

a. Spinnaker Point

Total trips estimated (while the exact number of dwellings and berths is under revision the number of trips will not vary enough to affect the model) 6,960 trips/day

b. Seastrand

Attached single-family residences - 34 units at 9 trips/unit 306 trips/day

c. Industrial Area

150.5 acres at 70 trips/gross acre 10,540 trips/day

d. Parks

110.0 acres at 5 trips/gross acre 550 trips/day

e. The weekend trip generation for recreational uses will be higher than the average weekday.

*Note: This table includes the trips generated by the marina project (Application No. 11219-47) which has been withdrawn.

4.40. Trip distributions were made in accordance with the basic trip patterns developed in studies for the San Rafael Redevelopment Area, modified somewhat to reflect the major categories of land uses. (J.D. Drachman Associates, 1976). The distributions were estimated as follows:

<u>Area</u>	<u>Percent of Trips</u>		
	<u>Industrial</u>	<u>Residential</u>	<u>Recreational</u>
East Francisco Boulevard	11.0	16.8	11.2
East San Rafael	5.5	6.9	4.6
West Francisco Boulevard	4.0	11.6	7.6
Central San Rafael	5.0	12.4	8.3
West of San Rafael	7.5	6.2	4.1
U.S. Route 101 South	21.0	25.5	27.0
U.S. Route 101 North	29.0	15.5	31.2
East Bay (State Route 17)	17.0	5.1	6.0
	100.0	100.0	100.0

4.41. The magnitude of the traffic generation impact under consideration is measured on the nearby major streets and roads only, since proportionate increases in traffic diminish below a measureable level as distance and dispersion on the street system increase. The estimates of projected traffic and the percent increments on the adjacent streets are listed in Table I-1, Page VI-I-9 Appendix B.

4.42. Although the weekend traffic generated by recreational uses will be higher than the average weekday traffic, it will be offset by the lower generation of the residential and industrial areas. The heaviest overall traffic volumes, therefore, are assumed to occur during the weekday evening peak hour. It is noted that during this period, the contribution of recreational trips will be correspondingly low.

4.43. The heavy proportionate increases in traffic will occur on those streets where current volumes are low and where relatively high development of adjacent properties is proposed. They include Bellam Boulevard east of Francisco Boulevard East, Anderson Drive south of Bellam Boulevard, Kerner Boulevard south of Bellam Boulevard, and Francisco Boulevard East north of the San Quention interchange. For each of these, however, the projected volumes are within the capacities of the existing roadway sections, and an acceptable level of service can be maintained.

4.44. The most critical location in the entire development area will be Bellam Boulevard west of Francisco Boulevard East because of the existing congestion through the State Route 17 and U.S Route 101 interchanges. Under existing roadway geometrics and with the projected traffic increase of almost 50 percent, this street will be operating at above capacity for extended periods during the morning and evening.

4.45. On Canal Street and Medway Road, volume increases are about 1,300 vehicles per day, an increase of 20 percent. The total projected volumes on Medway Road are approximately 7,000 vehicles per day, and operational conditions will not be appreciably affected on either street.

4.46. The largest projected increases on Francisco Boulevard East will be 26 percent northerly of Medway Road and 24 percent between Medway Road and Bellam Boulevard. Although these proportionate increases are relatively low, the impacts will be more severe because of the existing congested conditions during peak hours. South of Bellam Boulevard, traffic on Francisco Boulevard East decreases significantly.

4.47. Kerner Boulevard will be extended southerly parallel to Francisco Boulevard East, connecting to it north of the San Quentin interchange. It is anticipated that most of the industrial development between Kerner Boulevard and Francisco Boulevard East will have access oriented to Kerner Boulevard to take advantage of the higher capacity of that street as compared to the substandard section of Francisco Boulevard East. Projected volumes on Kerner Boulevard are low for the existing and future sections. The same is true for Anderson Drive south of Bellam Boulevard. The extension of this street will provide an alternative route to State Route 17 and would be used as such by a portion of traffic from the southern part of the development area.

4.48. On the State Route 17 freeway, the increase in daily traffic is estimated at 7.5 percent. Since traffic flow characteristics on freeways differ from those on conventional streets, levels of service are expressed in terms of flow stability and operating speeds. At Service Level A, flow is free and prevailing speeds are at the limit. On U.S. Route 101, the actual increment during the peak hour will probably be less than the 4-6 percent average daily increment because the traffic congestion on the freeway will divert the shorter project area trips to local streets and since recreation-oriented trips during the evening peak are low. The freeway does and will continue to operate at Service Level D (impeded flow at low speeds, Table 5), during peak hours.

4.49. The critical spots in the operation of the street system are the intersections. The major street intersections and freeway interchanges are listed below, along with existing entering-peak hour traffic and the peak hour traffic generated by the new development. See Table I-2, (page VI-I-12, Appendix B) for data.

4.50. As was the case with the street system, the largest traffic increase - Bellam Boulevard and Kerner Boulevard - will have little actual impact because of the light total volumes and the relatively high standard of intersection geometrics. The same is true of Medway Road-Canal Street and Medway Road-Francisco Boulevard, where absolute volumes or low proportionate increases will not affect current levels of service. At Bellam Boulevard State Route 17 and at Bellam Boulevard-Francisco Boulevard, the 72- and 65-percent increases respectively could cause critical congestion. A project is underway to improve that section of Bellam Boulevard and to maintain an acceptable level of service, even with additional traffic. This project will also improve the service level at the Anderson Drive intersection. The project is designed to alleviate current traffic congestion and accommodate some increase in traffic from future development.

4.51. Impacts on historical and archeological resources. Since there are no known archeological or historical resources at the proposed project sites, there would be no impact unless such resources were uncovered during construction. In such a case, work would stop to permit professional evaluation of the find.

4.52. The State Historical Preservation Officer and the Department of Interior have been contacted to comment on the effect of this proposed project on any possible archeological and/or historical resources in the area.

Economic Environment

4.53. Manufacturing impacts. No specific data of the expected manufacturing impacts on San Rafael or Marin County are currently available due to a lack of plans for the proposed industrial development. However, an increase in employment and production man-hours can be expected with development. Tax revenues to San Rafael can also be expected to increase from property assessments and sales taxes.

4.54. Wholesaling. Again, lack of specific data for this category prevents any quantitative or qualitative information about the effects of the proposed project.

4.55. Retailing. No specific data on the expected changes in retail employment and sales are currently available due to a lack of specific plans for the commercial area of the proposed project.

4.56. Housing. New housing units in the Spinnaker Point development will provide additional tax revenue from new property assessments.

5.00 PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

5.01 Vegetation and Wildlife. About 51 acres of existing wetlands used by numerous species of animals (including two endangered species, the salt marsh harvest mouse and the California clapper rail) would be lost due to the proposed projects, and the possibility of upgrading these areas by exposure to tidal action would be forfeited. Urban runoff containing silt, oils, greases and fertilizers would have an adverse impact on salt marshes and mudflats in the area. Noise from the developed areas would decrease the use of the site by wildlife. Loss of the ponding areas would also have an adverse impact upon the heronry on West Marin Island.

5.02 Water Quality. Erosion from construction sites would temporarily increase sediment runoff into adjacent waterways. Water quality degradation would occur due to urban runoff.

5.03 Air Quality. Construction vehicles would be a temporary source of air pollutant emissions. The new urban areas created on the project site would be a continuing source of air pollutant emissions.

5.04 Public Services. Urbanization would result in increased water, gas, and electrical useage for the area.

5.05 Transportation. Development of the area would result in increased vehicle traffic. Large proportionate increases in traffic would occur on streets where current volumes are low and where relatively high development of adjacent properties are proposed. Although the majority of project area roadways could handle the increases in traffic, it is likely that increased congestion would occur in a number of areas, particularly during peak commute hours.

5.06 Settlement. Compressibility of the bay mud and the added fill and development would increase long-term settlement with resultant damage to buildings and utilities. An earthquake in the area could cause differential settling with even more severe impacts on local structures.

6.00. ALTERNATIVES TO THE PROPOSED ACTION

6.01. The three alternatives available to the Corps on each of the permit applications for the East San Rafael Baylands are: to issue the permit, to issue the permit with conditions which would minimize the adverse impacts, or to deny the permit. The impacts from granting the permits are discussed in this Environmental Statement.

6.02. When a Corps permit is issued with "conditions", these conditions are usually the result of comments made on the project by another agency or the general public. The conditions are normally designed to insure that a potential adverse environmental impact will not occur, or is minimized.

6.03. If a Corps permit is denied, then the applicant is free to propose an alternate use for the site or select a new site. If the new proposal is within Corps jurisdiction, then the applicant must again apply for Corps authorization.

6.04. No alternate sites for the proposed projects or alternate uses for the project sites have been proposed to the Corps by the permit applicants.

6.05. Permit Denial. Denial of the permit applications for East San Rafael would prevent the loss of the wetlands through filling. The wildlife habitat value of most of the existing wetlands could be improved if they were returned to direct tidal action, although this alternative might be impractical for the sites furthest from the Bay. In addition, areas 3, 3A(1), 3A(2), 6B, 6C, and 9 (Plate 7) are after-the-fact permit applications. Denial of permits for these areas could also prescribe any corrective actions to be taken regarding work already accomplished, including restoration of those areas subject to denial.

6.06. In the case of the site owned by San Quentin Landfill Company, (parcel 8, Plate 7) removal of the dikes could allow water contamination. This situation could be avoided by the placement of an impermeable cap and cover on the outward side of the existing fill. This action would also require a Corps permit, and would involve the loss of a portion of the 6.61-acre site. The San Quentin site would not be immediately converted to marsh if the dike were breeched since it has been excavated to three to five feet below mean lower low water. Some fill might be necessary to restore the marsh.

6.07. The potential also exists for creating fresh water ponds by using effluent from the secondary treatment plant southwest of Spinnaker Point. Freshwater ponds could upgrade the wildlife habitat value of some of the sites further from the Bay.

6.08. If some or all of the permit applications were denied, and the permit sites remained as they are at present, the wetlands would experience some decline in wildlife habitat value from construction and development on sites in East San Rafael outside of Corps jurisdiction. Development will increase auto traffic in the area thereby increasing noise and decreasing air quality. Runoff from adjacent filled sites during and after construction will increase the amount of silt released into the ponds and waterways which may destroy benthic organisms. Runoff from surrounding developments may also contain pollutants such as oils and fertilizers which will adversely impact the wetlands and mudflats. Development will also create barriers between the wetland sites and thus discourage animal movement. All these factors will decrease the productivity of the area and decrease its use by wildlife.

6.09. Denial of the permits would also result in the loss of anticipated increases in tax revenues which would be used to meet payments on the General Obligation Bonds for the City of San Rafael Drainage Assessment District #1. Fiscal advantages to the City and other local taxing bodies would be substantially greater if the permits were granted.

6.10. The Corps will consider each permit application individually and also evaluate it in relation to the entire Baylands area. Permits are issued on the basis of the overall public interest. The Fish and Wildlife oriented agencies represent an important element of the public interest. Paragraph 1.25 ff discusses their requirements. To date the Corps has reviewed three proposals concerned with compensation of fish and wildlife impacts. The Marin Municipal Water District has proposed to dedicate 2.5 acres of their land as a park and to fill and develop the other 2.4 acres in the Corps jurisdiction. The San Quentin Disposal Company has proposed a modified project which is described in paragraph 1.28. Dr. Haskell Norman has proposed a modified project which is described in paragraph 1.29. The Corps is currently working with Stanley Herzstein class action trustee for the lands of Holiday Magic to clarify whether California Department of Fish and Game and U.S. Fish and Wildlife Service criteria for wildlife compensation can be met.

7.00. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT
AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

7.01. The site has been altered by diking and filling. The biological productivity of the area has been reduced. The long-term gradual destruction of the marshes of San Francisco Bay has resulted in a greatly increased value of actual or potential marshland habitat. Man's short-term use of even marginal marshland habitat for urban development will result in further negative pressures on wildlife.

7.02. The indirect effect of hydrologic and water quality changes on the local ecosystem, as manifested in the loss of waterways and wetlands, is significant in the dynamics of energy flow and gross productivity. This is already evidenced in the proposed development area, which has been cut off from tidal action since 1956, with the once highly productive salt marshes and mudflats having been partially filled and allowed to degenerate. Although most of the project areas are not presently tidal marsh, some contain marsh vegetation and provide valuable open space habitat for wildlife. Some restoration of wetlands will be part of the total redevelopment, but generally, urban development will eliminate long term use of the current vegetation and open space areas by wildlife. Development will also add to air, noise, water pollution and the need for public services.

7.03. Development in the area will experience long range settlement stress on building structures and buried utility lines. Seismic action can result in ground failure, liquefaction, and shaking that would seriously damage structures on the site. With continued settlement, flood hazards are increased, especially during storms and levee failure.

7.04. Development of the area would enhance the socio-economic environment by providing housing, employment, recreation and open space. However, in the long-term, more moderate income housing will be needed than is presently planned. (Williams & Mocine, August 1976).

8.00. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES WHICH COULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

8.01. Continued filling and development of East San Rafael would convert a basically open space area into an urban area. Fill would be committed to areas and development would commit the areas to urban use.

8.02. Fill and development would prevent the restoration of tidal marsh and reduce open space. Existing tidal marsh will be maintained as an element of the Redevelopment project.

8.03. Use of building materials, energy, and transportation resources in the development of the area would irretrievably commit the use of these resources to the project area. Service requirements would also be necessary once the development is complete.

8.04. The proposed development would permanently alter the visual appearance of the East San Rafael area.

9.00 COORDINATION AND COMMENTS AND RESPONSES

9.01 Public Participation. All applications for Department of the Army permits in the East San Rafael area have been announced by Public Notice. Comments on the Public Notices for each of the applications pending at this time are summarized below. (Copies of the Public Notices are included in Appendix A).

(1) Public Notice No. 9344-47 (originally 74-0-9 and 74-0-9 (a)) of 27 July 1973 and 8 August 1973 regarding the application by the San Quentin Disposal Company. Comments were received from: the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, the California State Resources Agency, the San Francisco Bay Conservation and Development Commission, the Marin Audubon Society and the San Francisco Bay chapter of the Sierra Club. The commenting agencies and groups were concerned with: loss of wildlife habitat, compensation for lost wildlife habitat, potential flooding of Highway 17, freeway access to the proposed project, compatibility with Redevelopment Agency plans for the site and vicinity and air and water quality.

(2) Public Notice No. 9441-47 of 18 January 1977 regarding the application by Dr. Haskell Norman. Comments were received from: the Environmental Protection Agency, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, the California State Resources Agency, San Francisco Bay Conservation and Development Commission, Marin Audubon Society, and the City of San Rafael. The primary areas of concern were loss of wetland habitat and the need to coordinate development on the project site with the City of San Rafael.

(3) Public Notice No. 9452-47 (originally 75-198-059) of 1 April 1975 regarding the application by the Marin Municipal Water District. Comments were received from: the Environmental Protection Agency, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, the California State Resources Agency, the San Francisco Bay Conservation and Development Commission and the Marin Audubon Society. Areas of concern were: loss of wildlife habitat, compensation for lost wildlife habitat, flood danger to Highway 17, air and water quality, and the public interest in the preservation of wetlands.

(4) Public Notice No. 11403-47 of 27 May 1977 regarding the application by Ghilotti Brothers Inc. Comments were received from the Environmental Protection Agency, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, California State Resources Agency, San Francisco Bay Conservation and Development Commission, Save San Francisco Bay Association, California Waterfowl Association, Marin Audubon Society, Marin Conservation League and one individual. The comments were concerned with: the loss of wetland habitat, compensation for lost wetland habitat, flood hazard to Highway 17, and the public interest in preservation of wetland areas.

(5) Public Notice No. 12255-47 of 20 October 1978 regarding the application by Stanley Herzstein, Class Action Trustee for Holiday Magic. Comments were received from the Environmental Protection Agency, National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, California State Resources Agency, San Francisco Conservation and Development Commission, California Waterfowl Association and the Marin Audubon Society. The commenting agencies and groups were concerned with the loss of wetland habitat and compensation for the loss of wildlife habitat.

(6) Public Notice No. 12444-47 of 26 October 1978 regarding the application by Forrest R. Morpew. Comments were received from: Environmental Protection Agency, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, California State Resources Agency, San Francisco Bay Conservation and Development Commission and the Marin Audubon Society. Areas of concern were: loss of wetland habitat, compensation for the loss of wildlife habitat, conflicts with the State's policy on wetlands, and a possible violation of the public trust in tidelands.

9.02. The Corps has held one public hearing on the project. This was held on 28 January 1976, and concerned the San Quentin Landfill Application. Issues raised at the hearing were: the loss of wetlands, the need for mitigation, the flood hazard to Highway 17 and the need for an ecologically sound land use plan for the project site and vicinity.

9.03. The Corps participated in an open meeting at San Rafael City Hall on 22 September 1978 which covered the entire East San Rafael Baylands project. The meeting was attended by members of the Corps, U.S. Fish and Wildlife Service, National Marine Fisheries Service, the State Departments of Fish and Game and Transportation, the City of San Rafael, permit applicants, members of the Marin Audubon Society, Save the San Francisco Bay Association, Marin Conservation League, Marin County Wildlife and Fisheries Advisory Committee and four individuals. The meeting concerned compensation plans for wildlife habitat lost as a result of the proposed project.

9.04. Comments on the Draft Environmental Statement for East San Rafael Baylands (released in February 1977) were received from the following Agencies:

U.S. Environmental Protection Agency

U.S. Department of the Interior

U.S. Department of Health, Education and Welfare

U.S. Department of Commerce

U.S. Department of Transportation

U.S. Department of Agriculture

Resources Agency of California

Bay Area Air Pollution Control District

Marin Municipal Water District

City of San Rafael

Marin Audubon Society

Bay Land Area Study Team

9.05. The major concerns stated in the comments on the Draft ES were for wildlife resources, hydrologic effects, traffic congestion, seismic risks, and air and water quality. The letters of comment are contained in Appendix E of this document along with the Corps responses to those comments. It should be noted that the Draft ES and the comments were based on development plans that have been altered. The City of San Rafael no longer plans to build a marina. Also, the City has created a park on the former Seastrand South residential site. None of the drainage ponds or permanent ponds are to be filled. Because of these changes, some of the comments on the Draft ES are no longer relevant. The paragraphs referenced in the comment letters applied to the Draft ES and may not correspond to paragraphs in the Final ES.

9.06. Comments were also received on the Draft ES for San Quentin Landfill (published in November 1974) from the following agencies:

U.S. Environmental Protection Agency

U.S. Department of the Interior

U.S. Department of Transportation

U.S. Department of Commerce

U.S. Department of Health, Education and Welfare

U.S. Department of Agriculture

U.S. Advisory Council on Historic Preservation

California Office of Planning and Research

California Department of Fish and Game

State Solid Waste Management Board

California Health and Welfare Agency

California Department of Transportation

The comment letters and Corps responses are presented in Appendix F.

9.07. A proposed Final ES was also prepared for San Quentin Landfill in July 1975. Comments were received on the proposed Final ES from the following agencies.

U.S. Department of Transportation
California Department of Parks and Recreation
California Department of Transportation
Bay Lands Area Study Team

These comment letters and Corps responses are included in Appendix G.

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San Rafael Redevelopment Agency. June 1977. Urban Design and Development Policy Statement for East San Rafael.

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_____. September 1976 (b). Spinnaker Point Residential Development Plan, Final Environmental Impact Report. Prepared for San Rafael Redevelopment Agency.

_____. August 1976. East San Rafael Redevelopment Plan, Draft Environmental Impact Report. Prepared for San Rafael Redevelopment Agency.

TABLES

TABLE 1
SUMMARY OF RAINFALL DATA AT SAN RAFAEL

San Rafael	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<u>Rainfall</u>													
Average, inches	8.23	6.00	4.61	2.96	0.76	0.25	0.01	0.08	0.38	2.02	3.99	7.37	36.66
Maximum recorded, inches	17.37	19.03	9.02	8.27	5.51	2.28	0.05	0.77	4.45	10.04	9.63	22.65	55.11
Days exceeding 0.1 inch	8	7	7	4	2	0	0	0	0	2	5	6	41
Days exceeding 0.5 inch	6	4	3	2	1	0	0	0	0	1	3	4	24

From Table C-1, Page VI-C-2, Appendix B.

TABLE 2

POND QUALITY--EXISTING CONDITIONS VERSUS PROJECT

Pond	Pond Size/Loadings/Quality	Spinnaker Point		Middle Pond		South Pond	
		Existing Conditions	Project Conditions	Existing Conditions	Project Conditions	Existing Conditions	Project Conditions
Volume, acre-feet		102	53	100	200	15	15
Land Use							
Open, acres		80	16.5	475	200	140	70
Urban, acres		0	72	25	300	10	80
Quality of Pond (Summer)							
BOD, mg/l		1.20	8.20	2.20	6.70	2.50	7.78
Nitrogen, mg/l		0.41	0.64	0.47	0.69	0.49	0.73
Phosphorus, mg/l		0.25	0.30	0.26	0.35	0.27	0.35

From Table C-5, Page VI-C-8, Appendix B.

TABLE 4

EMISSIONS DURING CONSTRUCTION

East San Rafael Redevelopment Sub-Area	Estimated Emissions in Pounds Per Day During Construction				
	Particulate	Organics	Nitrogen Oxides	Sulfur Oxides	Carbon Monoxide
Spinnaker Point	46	61	304	48	152
Seastrand North & South	15	20	99	15	50
Marina (Primarily Dredging Operations)	80	10	100	120	6
Commercial	5	7	40	5	17
Industrial	100	120	600	100	300
1974 Marin County	14,200	90,000	62,000	3,000	520,000

From Table AQ-6, Page VI-D-12, Appendix B.

TABLE 3

ABRIDGEA WOOD-NEUMANN SCALE OF EARTHQUAKE INTENSITIES
(Also Known as Modified Mercalli Scale)

-
- I. Not felt, except by very few, favorably situated.
 - II. Felt only on upper floors, by a few people at rest. Swinging of some suspended objects.
 - III. Quite noticeable indoors, especially on upper floors, but many people fail to recognize it as an earthquake; standing automobiles may sway; vibrations feel like those of a passing truck.
 - IV. Felt indoors by many during day, outdoors by few; if at night, awakens some; dishes, windows, and doors rattle, walls creak; standing cars may rock noticeably. Sensation like heavy truck striking a building.
 - V. Felt by nearly all, many wakened; some fragile objects broken, and unstable objects overturned; a little cracked plaster; trees and poles notably disturbed; pendulum clocks may stop.
 - VI. Felt by all; many run outdoors; slight damage; heavy furniture moved; some fallen plaster.
 - VII. Nearly everyone runs outdoors; slight damage to moderately well-built structures, negligible to substantially built, but considerable to poorly built; some chimneys broken; noticed by automobile drivers.
 - VIII. Damage slight in well-built structures; considerable in ordinary substantial buildings, with some collapse; great in poor structures. Panels thrown out of line in frame structures; chimneys, monuments, factory stacks thrown down; heavy furniture overturned; some sand and mud ejected, wells disturbed; automobile drivers disturbed.
 - IX. Damage considerable even in well-designed buildings; frame structures thrown out of plumb; substantial buildings greatly damaged, shifted off foundations; partial collapse; conspicuous ground cracks; buried pipes broken.
 - X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed or knocked off their foundations; rails bent, ground cracked; landslides on steep slopes and riverbanks; water slopped over from tanks and rivers.
 - XI. Few if any masonry structures left standing; bridges destroyed; underground pipes completely out of service, rails bent greatly; broad cracks in ground and earth slumps and landslides in soft ground.
 - XII. Damage total; waves left in ground surface and lines of sight disturbed; objects thrown upward into the air.
-

Source: Gilluly, Waters, and Woodford. Principles of Geology, 1959.
W. H. Freeman and Company, San Francisco, California.

TABLE 5

LEVEL-OF-SERVICE DESCRIPTORS

Level of Service A - Conditions are such that no approach phase is fully utilized by traffic, and no vehicle waits through more than one red indication.

Level of Service B - An occasional approach phase is fully utilized; vehicle platoons are formed; this is suitable operation for rural design purposes.

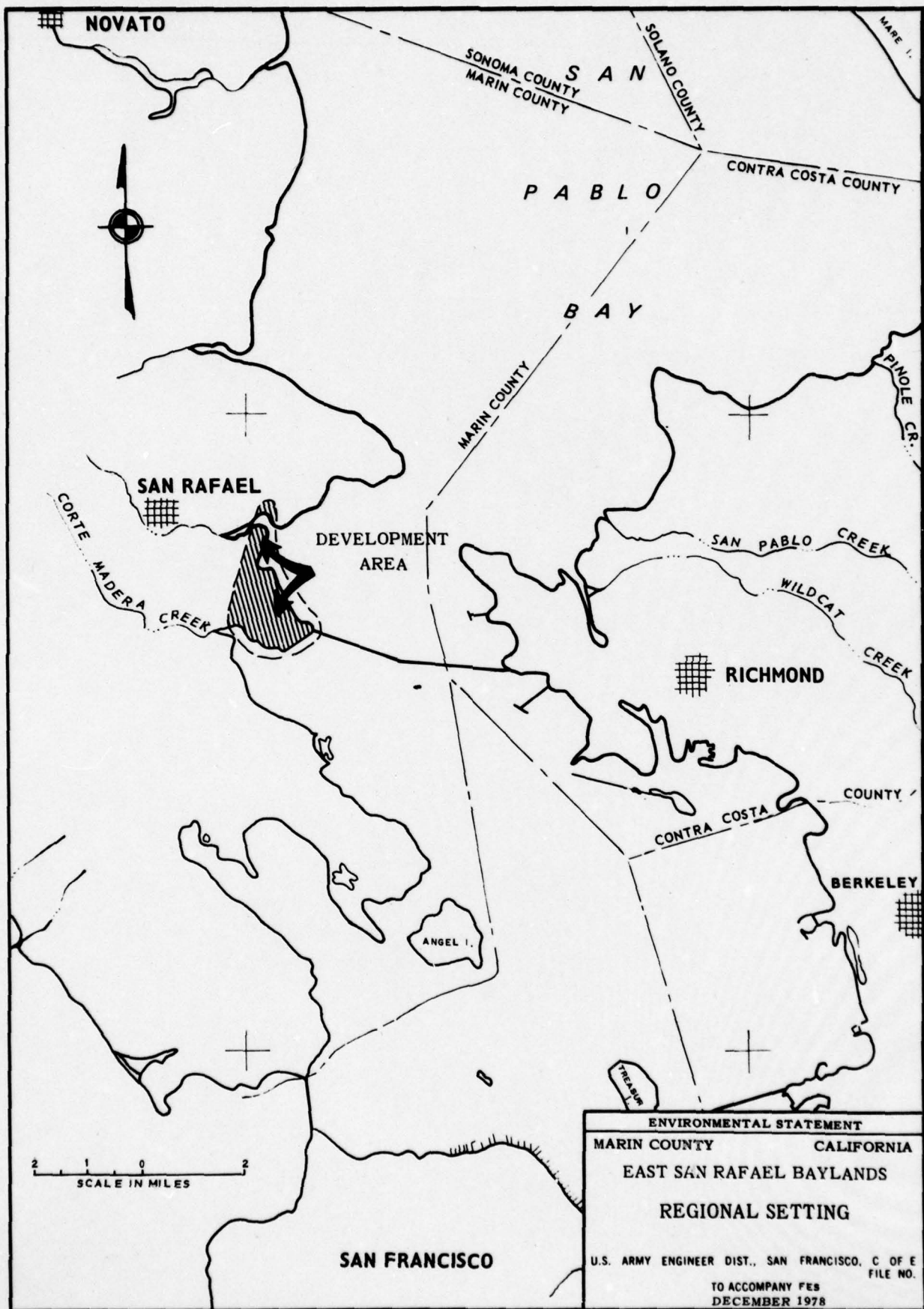
Level of Service C - Stable operation; occasionally, drivers may have to wait through more than one red indication; this is suitable operation for urban design purposes.

Level of Service D - Approaching unstable operation; queues develop, but are quickly cleared.

Level of Service E - Unstable operation; the intersection has reached capacity; this condition is not uncommon in peak hours.

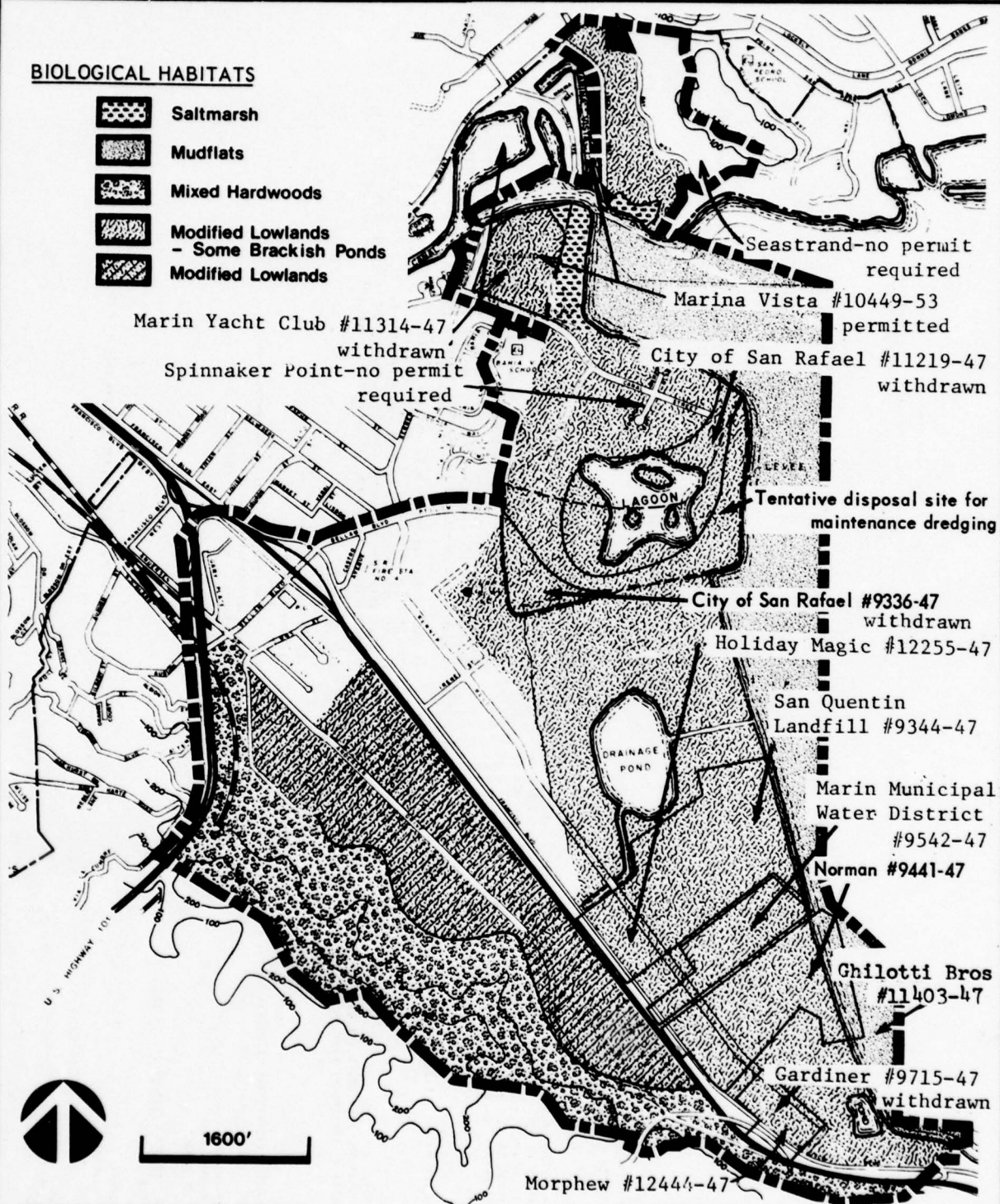
Level of Service F - Forced flow; intersection operates below capacity.

PLATES



BIOLOGICAL HABITATS

-  Saltmarsh
-  Mudflats
-  Mixed Hardwoods
-  Modified Lowlands
- Some Brackish Ponds
-  Modified Lowlands



1600'

WILLIAMS & MOCINE
CITY & REGIONAL PLANNING

LEGEND

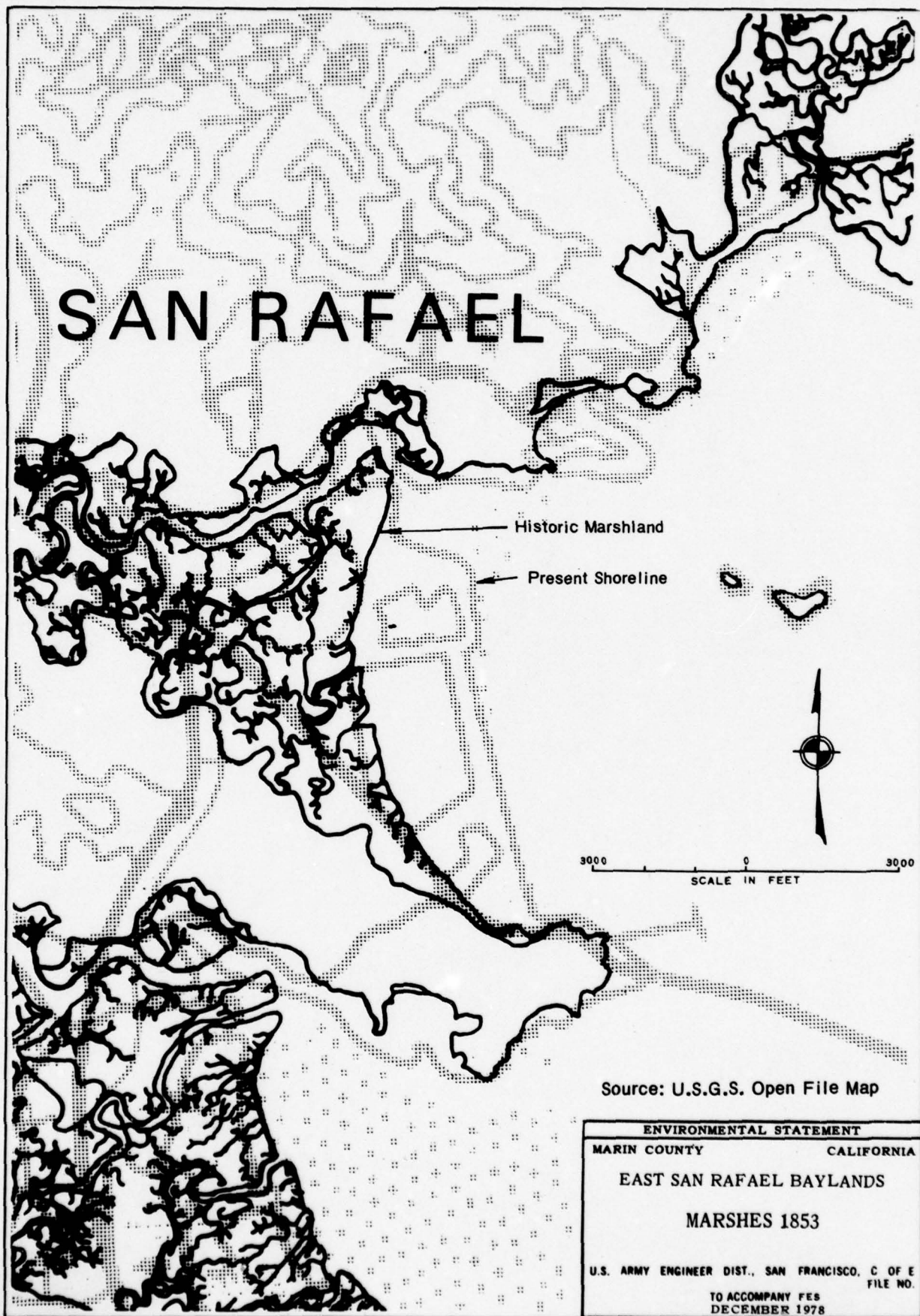
- Area proposed by City for dredge disposal from San Rafael Canal
- Approximate application location

ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA
EAST SAN RAFAEL BAYLANDS

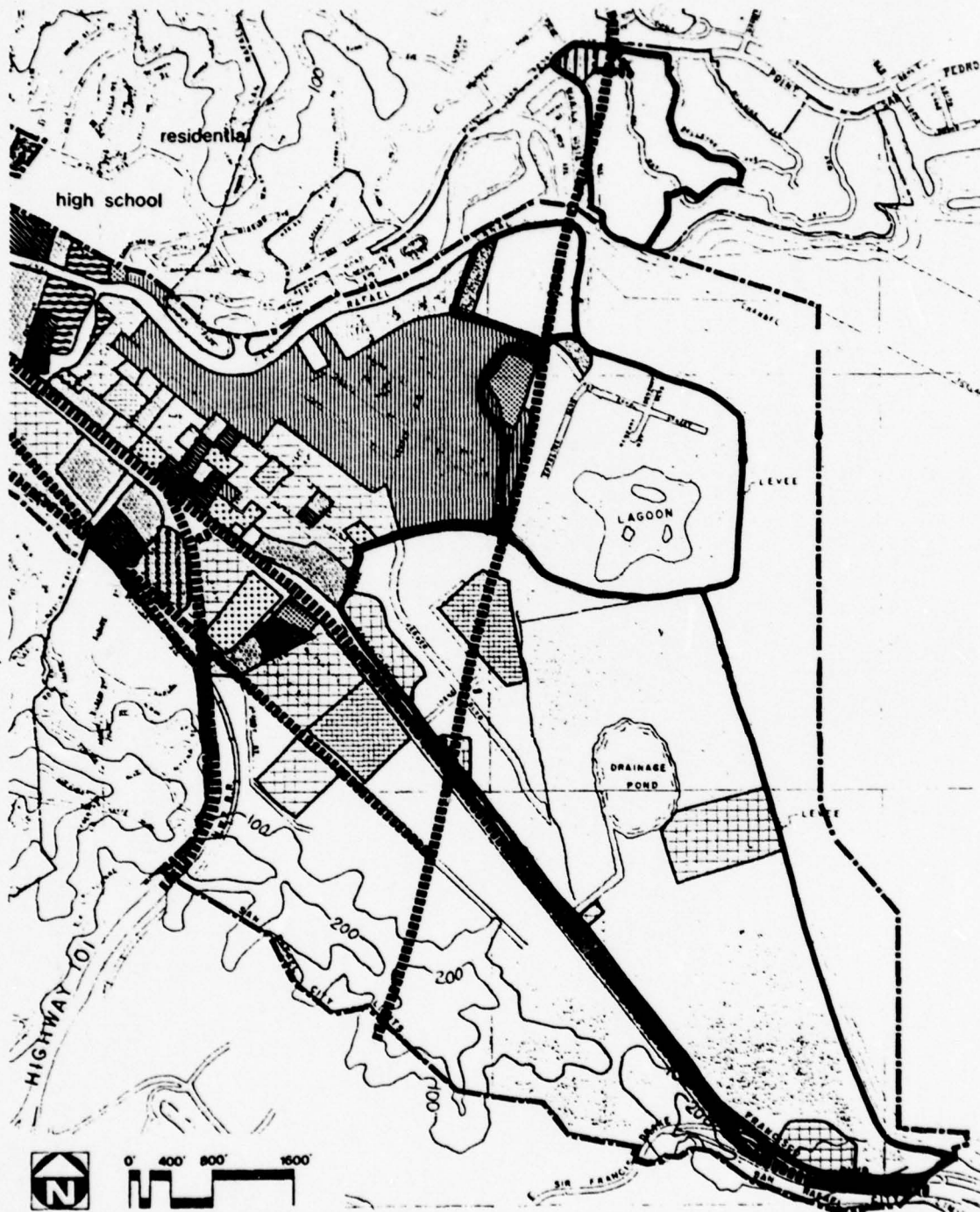
APPROXIMATE APPLICATION LOCATIONS

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
FILE NO.
TO ACCOMPANY JES
DECEMBER 1978



Source: U.S.G.S. Open File Map

ENVIRONMENTAL STATEMENT	
MARIN COUNTY	CALIFORNIA
EAST SAN RAFAEL BAYLANDS	
MARSHES 1853	
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E	
FILE NO.	
TO ACCOMPANY FES	
DECEMBER 1978	



EXISTING LAND USES

- | | | | |
|--|--------------------------------------|--|-----------------------------------|
| | Single-Family Housing | | Utility / Transportation Corridor |
| | Multi-Family Housing | | Park |
| | Industrial-Production / Distribution | | Vacant |
| | Utilities | | |

ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA
EAST SAN RAFAEL BAYLANDS

EXISTING LAND USES

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
FILE NO.

TO ACCOMPANY FES
DECEMBER 1978




PLATE 4

PROPOSED LAND USE

As approved and updated by the San Rafael Redevelopment Agency
meetings of May 17 and May 24, 1978.

-  Commercial & Industrial
-  Commercial Services
-  Institutions
-  Housing
-  Conservation / Recreation
With Supportive Commercial / Industrial
-  Open Space (Recreational & Conservation)
-  Water Areas

INDEX TO NUMBERED AREAS

1. Seastrand
 2. Pickleweed Park
 3. Spinnaker Point
 4. Marina
 5. Shoreline Park
 6. Lagoon Park
 7. Commercial & Industrial
 8. Fringe Retail
 9. Point San Quentin Ridge
-  Existing Sewage Treatment Plant
 -  Possible New Sewage Treatment Plant
 -  Fire Station



0 400 800 1600'

East San Rafael Plan Area Boundary

ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA
EAST SAN RAFAEL BAYLANDS

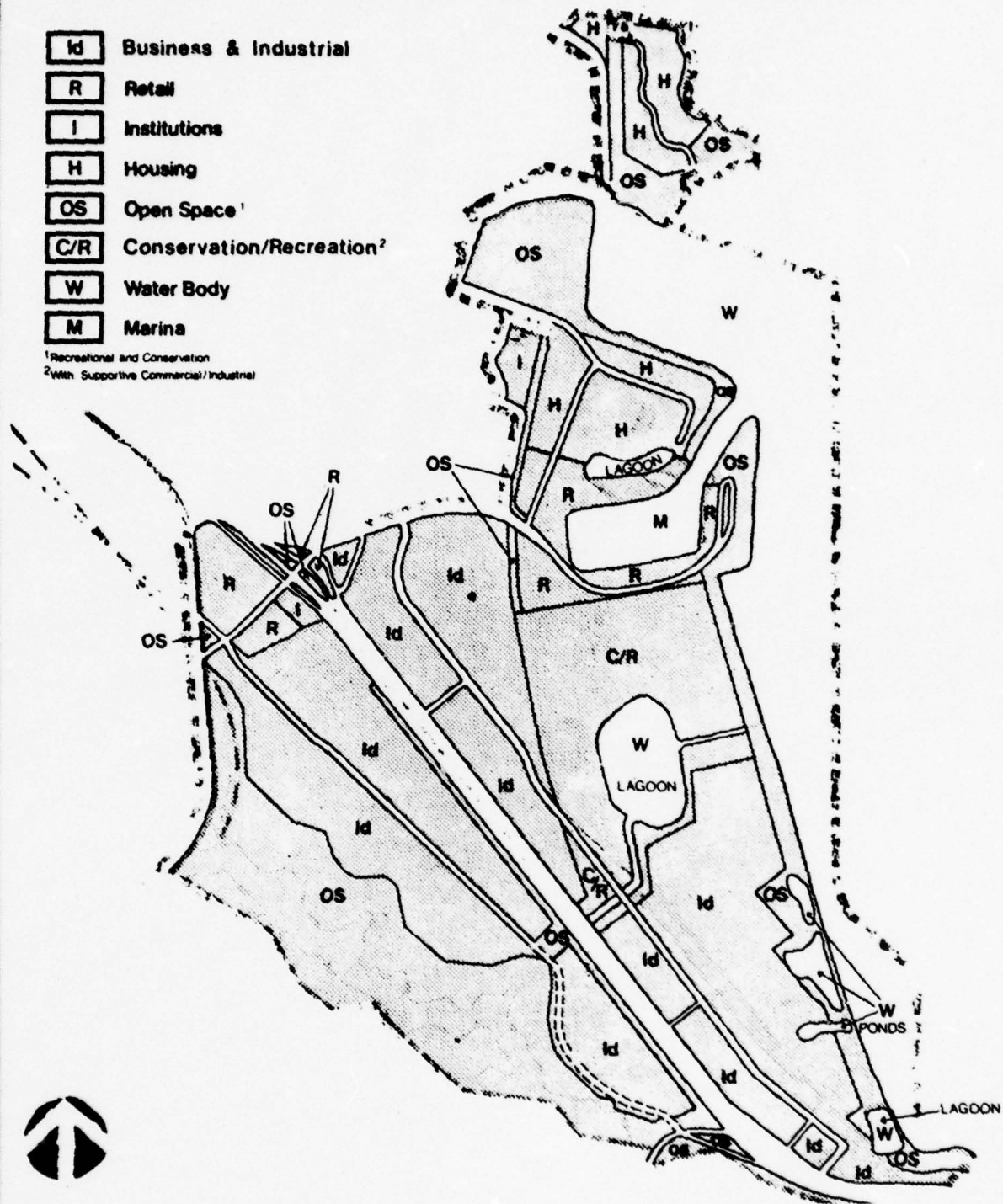
CENTRAL SAN RAFAEL REDEVELOPMENT PLAN

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
FILE NO.

TO ACCOMPANY FES
DECEMBER 1978

- Id** Business & Industrial
- R** Retail
- I** Institutions
- H** Housing
- OS** Open Space¹
- C/R** Conservation/Recreation²
- W** Water Body
- M** Marina

¹Recreational and Conservation
²With Supportive Commercial/Industrial



ENVIRONMENTAL STATEMENT

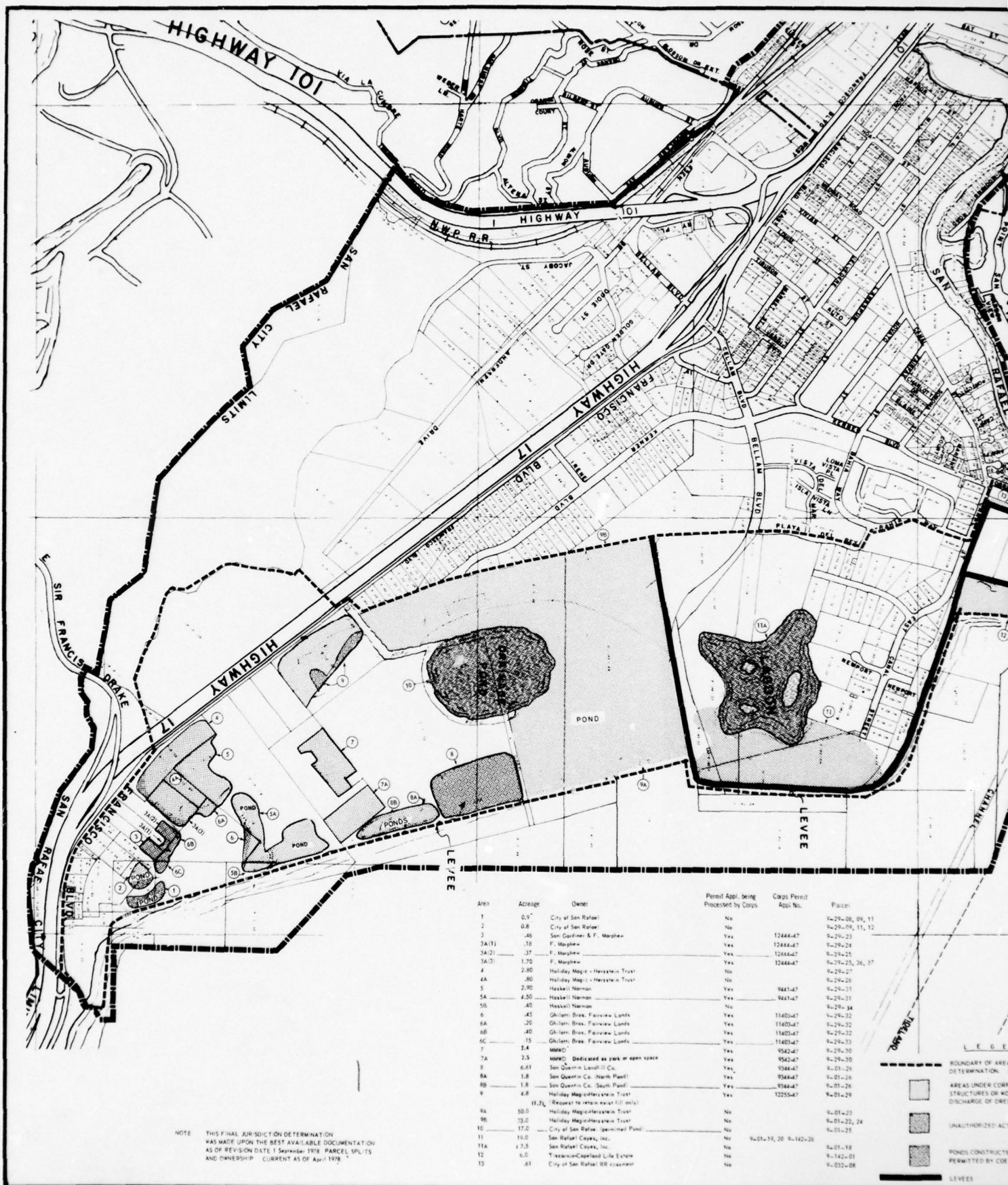
MARIN COUNTY CALIFORNIA

EAST SAN RAFAEL BAYLANDS

PROPOSED LAND USES

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
 FILE NO.

TO ACCOMPANY FES.
 DATED DECEMBER 1978





Project App. being Reviewed by Corps	Corps Permit App. No.	Page
NA	10444-47	4-29-08, 09, 11
NA	10444-47	4-29-09, 11, 12
NA	10444-47	4-29-23
NA	10444-47	4-29-28
NA	10444-47	4-29-25
NA	10444-47	4-29-25, 26, 27
NA	10444-47	4-29-27
NA	10444-47	4-29-28
NA	10444-47	4-29-31
NA	10444-47	4-29-32
NA	10444-47	4-29-33
NA	10444-47	4-29-34
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NA	10444-47	4-29-96
NA	10444-47	4-29-97
NA	10444-47	4-29-98
NA	10444-47	4-29-99
NA	10444-47	4-29-100

LEGEND

BOUNDARY OF AREA EVALUATED FOR DEPARTMENT OF ARMY CORPS OF ENGINEERS REGULATORY JURISDICTION UNDER THIS DETERMINATION. AREAS SHOWN IN WHITE WITHIN THIS BOUNDARY ARE NOT SUBJECT TO CDE JURISDICTION.

AREAS UNDER CORPS OF ENGINEERS REGULATORY JURISDICTION REQUIRING PERMITS FOR STRUCTURES OR WORK UNDER SECTION 16 OF THE RIVER AND HARBOR ACT OF 1890, AND/OR REQUIRING PERMITS FOR DISCHARGE OF DREDGED OR FILL MATERIAL UNDER SECTION 404 OF THE FEDERAL WATER POLLUTION CONTROL ACT OF 1972.

UNAUTHORIZED ACTIVITIES

PERMITS CONSTRUCTED IN CONNECTION WITH FILL AND STRUCTURES PERMITTED BY CDE PERMITS PREVIOUSLY ISSUED.

LEGEND



ENVIRONMENTAL STATEMENT	
MARIN COUNTY	CALIFORNIA
CORPS OF ENGINEERS REGULATORY JURISDICTION IN AREA BEING EVALUATED IN C. OF E., E.I.S. FOR EAST SAN RAFAEL BAYLANDS FILL AREA	
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E	
DRAWN:	FILE NO.
TRACED:	TO ACCOMPANY REPORT
CHECKED:	DATED DECEMBER 1978



LEGEND



AREAS SUBJECT TO STATE'S
BASIC WETLANDS POLICY OF
19 SEPT. 1977



AREAS SUBJECT TO U.S. FISH
AND WILDLIFE SERVICE PRO-
POSED MITIGATION

(ANY PROPOSAL TO FILL AREAS 1, 2, 7A, 10, 12, OR 13
WOULD ALSO REQUIRE MITIGATION)

THIS MAP WAS PREPARED 20 OCTOBER 1978 BASED
UPON CA. FISH AND GAME LETTER OF 21 SEPTEMBER 1978
U.S. FISH AND WILDLIFE HABITAT EVALUATION AND COM-
PENSATION REQUEST OF 18 SEPTEMBER 1978 AND SUB-
SEQUENT COMMUNICATION WITH D.W. CERESSE OF C.O.E.
REGULATORY FUNCTIONS BRANCH



2

Permit Appl. being Processed by Corps	Corps Permit Appl. No.	Parcel
No		9-29-08, 09, 11
No		9-29-09, 11, 12
Yes	12444-47	9-29-23
Yes	12444-47	9-29-24
Yes	12444-47	9-29-25
Yes	12444-47	9-29-25, 36, 37
No		9-29-27
No		9-29-26
No	1681-47	9-29-31
Yes	1681-47	9-29-31
No		9-29-34
Yes	11403-47	9-29-32
Yes	11403-47	9-29-32
Yes	11403-47	9-29-32
Yes	11403-47	9-29-33
Yes	9542-47	9-29-30
Yes	9542-47	9-29-30
Yes	9344-47	9-01-26
Yes	9344-47	9-01-26
Yes	9344-47	9-01-26
Yes	12255-47	9-01-29
No		9-01-23
No		9-01-22, 24
No		9-01-25
No	9-01-19, 20 9-142-26	
No		9-01-18
No		9-143-01
No		9-037-08

LEGEND
BOUNDARY OF AREA EVALUATED FOR DEPARTMENT OF ARMY CORPS OF ENGINEERS REGULATORY JURISDICTION UNDER THIS
DETERMINATION. AREAS SHOWN IN WHITE WITHIN THIS BOUNDARY ARE NOT SUBJECT TO COE JURISDICTION.

AREAS UNDER CORPS OF ENGINEERS REGULATORY JURISDICTION REQUIRING PERMITS FOR
STRUCTURES OR WORK UNDER SECTION 10 OF THE RIVER AND HARBOR ACT OF 1890, AND/OR REQUIRING PERMITS FOR
DISCHARGE OF DREDGED OR FILL MATERIAL UNDER SECTION 404 OF THE FEDERAL WATER POLLUTION CONTROL ACT OF 1972.

UNAUTHORIZED ACTIVITIES

PONDS CONSTRUCTED IN CONNECTION WITH FILL AND STRUCTURES
PERMITTED BY COE PERMITS PREVIOUSLY ISSUED.

LEVEES

ENVIRONMENTAL STATEMENT

MARIN COUNTY

CALIFORNIA

CORPS OF ENGINEERS REGULATORY
JURISDICTION IN AREA BEING EVALU-
ATED IN C. OF E., E.I.S. FOR EAST
SAN RAFAEL BAYLANDS FILL AREA

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN: FILE NO.

TRACED:

TO ACCOMPANY REPORT

CHECKED:

DATED DECEMBER 1978

APPENDIX A

MISCELLANEOUS SUPPORTING DOCUMENTS

APPENDIX A
MISCELLANEOUS SUPPORTING DOCUMENTS

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**A21	Public Notice No. 11219-47 - San Rafael Redevelopment Agency	A-77
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*	Numbers have changed since publication of the Draft Environmental Statement.	
**	Action taken after the publication of the Draft Environmental Statement.	

Document	Subject	Page
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**A27	Application No. 12255-47 - Holiday Magic - Herstein Trust	A-95
**A28	Public Notice No. 12255-47 - Holiday Magic - Herstein Trust	A-101
**A29	Application No. 12444-47 - Forrest R. Morphew	A-105
**A30	Public Notice No. 12444-47 - Forrest R. Morphew	A-107
**A31	Letter of Disclaimer Regarding 10258-47 - San Rafael Caves, Inc.	A-114
**A32	Letter of Disclaimer Regarding 12111-47 - Robert Valentine	A-116
**A33	Letter of Dedication regarding 9542-47 - Marin Municipal Water District	A-118
**A34	Letter describing revised plans for area 8, Application No. 9344-47 - San Quentin Disposal Company	A-119

- * Numbers have changed since publication of the Draft Environmental Statement.
- ** Action taken after the publication of the Draft Environmental Statement.



MAJOR
COUNCILMAN
JOHN J. DE PAULIS
LARRY J. HARRIS
JOHN C. HARRIS
EDDY HARRIS
WILLIAM J. BELLE

May 16, 1974

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
100 MALLISTER STREET
SAN FRANCISCO, CA 94102

ATTENTION: JAMES C. WOLFE, Chief
Construction-Operations Division

SUBJECT: SAN FRANCISCO BAY (NORTH)-81

Gentlemen:

This is in reply to your letter of March 22, 1974 directed to the City of San Rafael regarding a land fill operation conducted by the City for a future park on 6.14 acres of land adjacent to Bellam Boulevard Extension in East San Rafael.

The land area referred to was acquired by the City in 1965 for the purpose of developing it into a small neighborhood park to serve the East San Rafael area in the future. It also served a secondary purpose as a disposal site for rubbish and debris collected by the City in its street cleaning and maintenance operation. The site has been under continuous use by the City for this purpose for approximately 10 years and has filled a necessary need of the City.

The area was being used for this purpose for approximately 7 years prior to the Corps of Engineers' action in 1972 to reclaim its jurisdiction over unfilled tidelands behind existing dikes and the City was not in any violation of then existing laws. The area has now been capped with clean dirt fill and all debris has been completely covered and use of the site has been terminated. It will not be used in the future as a disposal site or will any filling be done without the necessary permit from the Corps of Engineers.

The City of San Rafael by this letter requests that the Department of the Army issue a permit authorizing the work that has already been completed and approving it in its present condition for permanent retention. We are enclosing a map of the area and a description of work

A-1

DOCUMENT A1

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
Attention: James C. Wolfe, Chief
Construction-Operations Division

May 16, 1974
Page - 2 -

using the permit application form required by your Department.
Please notify me of any other material that you may require.

Thank you for your cooperation with the City in this matter.

Very truly yours,

Ely Calloquette
ELY CALLOUETTE, JR.
Director of Public Works

Enclosures (5)

EC/jml



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
311 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94106

SPNCO-RN

21 January 1977

PUBLIC NOTICE NO. 9336-47

RESPONSE REQUIRED BY 21 February 1977

DESCRIPTION OF WORK: LAND FILL OF FUTURE PARK SITE

This area was filled over the past ten years with street sweepings, tree and shrub trimmings, construction wastes, and topped with 1' of clean earth fill. This clean earth fill was placed in the fill area at various times. The depth of fill varies to a maximum of 9 feet. This area is no longer in use as a fill site.

TO WHOM IT MAY CONCERN:

1. The City of San Rafael, 1400 Fifth Avenue, San Rafael, California 94902 has applied for a Department of the Army permit to retain fill on 6.14 acres (proposed park site) located adjacent to Bellam Boulevard Extension in East San Rafael, Marin County, California, as shown on the attached drawing.
2. The project site was acquired by the city in 1965 for the purpose of developing it into a neighborhood park. It also served a secondary purpose as a disposal site for rubbish and debris collected by the city in its street cleaning and maintenance operation. The site has been used for this purpose by the city for approximately 10 years and has received approximately 73000 cubic yards of material during that time. The area has now been capped with clean dirt fill, all debris has been completely covered and filling of the site was terminated in 1974. Corps authorization is required for that portion of fill placed after the publication of Public Notice 71-22(a) of 18 January 1972, approximately 15,000 cubic yards. The depth of fill varies to maximum of nine feet - approximately 12.6 feet above mean lower low water (MLLW). Approximately one acre of the site along the northeast boundary remains unfilled and at an elevation of 2.6 feet above MLLW.
3. The applicant will apply to the California Regional Water Quality Control Board, San Francisco Bay region, for certification in response to the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500), and will inquire as to the jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC).
4. In accordance with the requirements of the National Environmental Policy Act of 1969 (Public Law 91-190), the Corps of Engineers has made a preliminary assessment of the environmental, engineering, economic, and social aspects of the activity. This is one of several projects in the East San Rafael area for which Corps permit action is pending. It has been determined that the cumulative effect of these proposals would have considerable impact on the human environment and the Corps will prepare an Environmental Impact Statement (EIS) covering the area concerned. These aspects will be discussed in detail in EIS. Requests for copies of the draft

A-3

22 APR 77 2:00 PM
W.S.L. = 2.6 MLLW

4200



A-5

DOCUMENT A-5



SPNCO-RN

PUBLIC NOTICE NO. 9336-47

21 January 1977

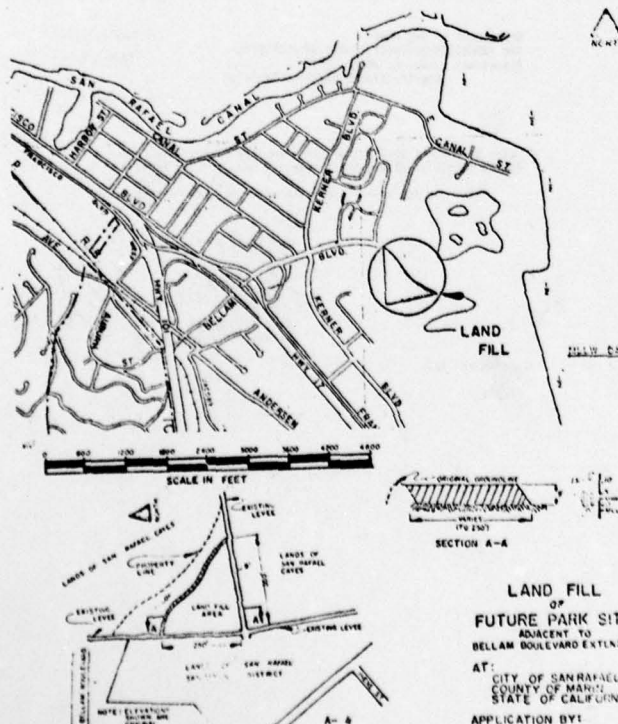
EIS should be submitted in writing and directed to the attention of the Environmental Branch of this office at the address given above. The proposed activity does not involve property listed in the National Register of Historic Places.

5. A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it eliminate the necessity of obtaining State assent to the work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.

6. Evaluation of this activity's impact on the public interest will also include application of the guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b), of the Federal Water Pollution Control Act of 1972, 33 U.S.C. Section 1344(b), and (if applicable) Section 102(a) of the Marine Protection, Research, and Sanctuaries Act of 1972, 33 U.S.C. Section 1412(a). Any person who has an interest which may be adversely affected by the issuance of a Corps of Engineers' permit may request a public hearing. The request must be submitted in writing to the District Engineer within thirty (30) days of the date of this notice and must clearly set forth the interest which may be adversely affected and the manner in which the interest may be adversely affected by the activity. This paragraph concerning guidelines and public hearings applies only to activities involving the discharge of dredged or fill materials in the navigable waters or the transportation of dredged materials for the purpose of dumping it in ocean waters.

2

A-6



SPWCO-RN
PUBLIC NOTICE NO. 9336-47

21 January 1977

7. Interested parties may submit in writing any comments that they may have on the proposed work. Comments should include the number and date of this notice and should be forwarded so as to reach this office within thirty (30) calendar days. It is the Corps' policy to forward any such comments which include objections to the applicant for resolution or rebuttal. If the objecting party so requests, that person's name will be deleted from the forwarded letter or the objections will be paraphrased in summary form. In such cases, however, it should be noted that the applicant cannot be requested to resolve such objections directly but can only rebut them by responding to the District Engineer. Details of any changes of a minor nature which are made in the final permit action will be provided on request.

H. A. F. ERTZHEIM, JR.
Colonel, CE
District Engineer



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94102

SPWCO-RN
NO. 9336-47

26 APR 1978

Mr. Ely Caillouette, Jr.
Director of Public Works
City of San Rafael
1400 Fifth Avenue
San Rafael, California 94902

Dear Mr. Caillouette:

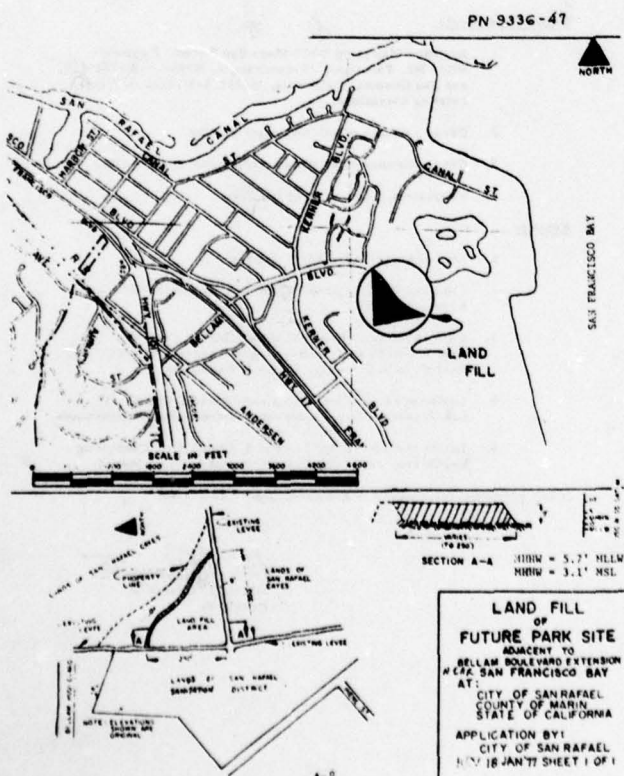
This is in response to your letter of 13 April 1978 requesting a determination of Corps of Engineers regulatory jurisdiction over a parcel of land owned by the city of San Rafael, located near San Francisco Bay, at Spaulding Point, within San Rafael city limits, Marin County, California. This parcel is identified on the Marin County Assessor's Map (Inclosure 1) as A.P. 9-230-16. Application No. 9336-47 for Department of the Army permit and been made by the city of San Rafael to place fill material on this parcel, as described in Public Notice 9336-47.

We have now completed our examination of the documentation submitted by your office, together with our records and Corps LOP C-47-53 and Permit C-47-53 issued in 1963, along with substantiating photographic evidence, documents submitted by the U.S. Fish and Wildlife Service, and the 'As-built' Drawing C-523.6 and C-523.9 dated 12 April 1965 of the Spaulding area submitted by Coleman, Selmi & Wright. In addition, several detailed ground inspections of this area, which included an elevation survey and wetland survey, have also been completed.

The information that you have submitted and that we have acquired is sufficient to determine administratively that the completed and proposed activity would not involve the discharge of dredged or fill material into a water of the United States (including adjacent wetlands) pursuant to Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1344; 36 Stat. 586) and would be conducted in an area which was filled prior to 16 January 1972 above the elevations reached by mean of the higher high water pursuant to Section 1 of the River and Harbor Act of March 3, 1899 (33 U.S.C. 405; 33 Stat. 1121). Therefore, at the present time, a Department of the Army permit will not be required for the completion of your fill proposal and permit, and your application (No. 9336-47) will be considered withdrawn and will be filed in this office as a matter of record.

A9

DOCUMENT A3



SPWCO-RN
Mr. Ely Caillouette, Jr.

26 APR 1978

However, we request that you notify this office when your work is scheduled to start, as it may be interpreted as an unauthorized activity by concerned members of the public. We also ask that you notify us upon completion of your project so as to enable our inspection staff to determine that no work was performed in our jurisdiction without proper authorization.

If you have any questions, please call Mr. D. W. Cornea (telephone 415-556-5426) of our Regulatory Functions Branch. Please address all written correspondence to the District Engineer, and refer to the file number at the head of this letter.

Sincerely yours,

JAMES C. WOLFE
Chief, Construction-
Operations Division

2
A-10

SAN QUENTIN DISPOSAL SITE
P.O. BOX 118 • SAN RAFAEL, CALIF. 94068

July 9, 1973
Revised per comments of your
check list dated July 2, 1973

The District Engineer
U. S. Army Engineer District
San Francisco Corps of Engineers
100 McAllister Street
San Francisco, California 94102

* 9344-47
7409A

Re: SAN QUENTIN DISPOSAL SITE - LANDFILL PERMIT

Gentlemen:

Your letter dated 3 November 1972, received 7 November 1972 stated that the Corps of Engineers has jurisdiction over all new work in unfilled portions of interior diked areas below former mean higher high water and that a permit from the Corps of Engineers is required to continue any such new work. A meeting was requested and held 7 November with your Mr. Vernon Smith and Mr. Evan Hong. A letter acknowledging this meeting and asking for additional information was sent 10 November 1972. An additional letter to the Corps of Engineers was sent February 1, 1973, explaining our current progress.

In accordance with your 3 November 1972 letter, we request that a permit be issued to complete the filling of the lands under the control of San Quentin Disposal Co. The applicants do not, by the filing of this application, waive any rights which they may have in the absence of such filing, nor do they concede that the Department of Army, Corps of Engineers, has jurisdiction over this land and its fill project; and applicants reserve all such rights including but not limited to the right to contest said claimed jurisdiction at any future time.

The site is located in the City of San Rafael, County of Marin, California. The land is being filled with earth and refuse, using a compacted sanitary landfill method. After filling, the land will be used in accordance with the General Plan of the City of San Rafael. The General Plan for the City of San Rafael designates the land uses in this area as planned industrial nearest Highway 17 and residential nearest the water. The City is currently revising the General Plan in conformance with Title 7.

Site Description

The San Quentin Disposal Site is located in the eastern part of the City of San Rafael (Engineering Sheet #1). It is bounded on the north and west

A-11 APPLICATION DOCUMENT A-1

to form cells and to cover the compacted debris in accordance with the City of San Rafael requirements. Earth is also imported as needed.

Of the total area to be filled by San Quentin Disposal Co. approximately 21 acres are subject to Corps permit. Within the area to be filled approximately 4000 feet of dikes have been constructed. Approximately 625,000 yards of debris and 275,000 yards of earth will be used to fill this area. (Engineering Sheet 4). The area now being filled (not subject to Corps permit) totals approximately 20 acres.

The engineering firm of Harding, Lawson & Associates has been used from the beginning as soils consultants and overall supervising engineers.

Existing Permits

San Quentin Disposal Co. was formerly operating and filling an area about 400 feet south of the present site for 5 years from 1963 to 1968. The present 60 acre site was first started in 1968 after a public hearing before the San Rafael Planning Commission in March of 1968 and a public hearing before the City Council of San Rafael in April, 1968; a fill permit was granted to San Quentin Disposal Co. to fill, in successive increments, the 60 acre area.

After the necessary hearings and permits before the City of San Rafael, including the Use Permit, Fill Permit and Public Works Operating Permit were obtained, the Air Pollution Control Board recommendations were incorporated within the requirements imposed. The San Francisco Regional Water Quality Control Board permit was applied for and obtained - Resolution 69-2. (Exhibit 6).

All State, Regional and Local requirements were met through public hearings and permits.

Since the first permits were obtained, periodic review has been made with the attendant public hearings.

Currently a Use Permit Determination under Section 14.62.04 of the City of San Rafael Zoning Code to permit an industrial park subdivision and commercial-recreational uses for the property is pending before the San Rafael Planning Commission.

San Quentin Disposal Co. operates under a current City of San Rafael Use Permit No. UP 68-31 (I) and City of San Rafael Department of Public Works, Permit to Operate a Rubbish Dump No. 28 (Pursuant to Ordinance No. 718).

Request for Certification to the U. S. Army, Corps of Engineers has been made. (Exhibit 7). Also, a request for jurisdiction has been made to the San Francisco Bay Conservation Development Commission (Exhibit 8).

by the East San Rafael Drainage Assessment District #1, on the west and east by the lands of Francisco Co. and on the south by the lands of Ceccotti et al and Dr. H. Norman (Exhibit 5--List of Adjacent Property Owners). The site lies approximately 600 feet east of Francisco Blvd., and is serviced by private road easement until such time as the City of San Rafael General Plan roadway network is implemented. The East San Rafael Drainage Assessment District #1 adjacent to the San Quentin Disposal Site is currently constructing drainage channels, a storage pond, a pump station and force mains in order to provide drainage for approximately 500 acres in East San Rafael. Corps of Engineers Permit Number 72-45, November 27, 1972, Installation of 60 inch Storm Drains Outfall Line and Permit Number 73-39, January 23, 1973, Construction of Storm Water Pump Station. The remainder of the adjacent lands are either undeveloped or partially developed and the owners are waiting the completion of the Drainage Project before development.

The East San Rafael Drainage Assessment District #1 was voted into existence by the City of San Rafael in order to ensure the orderly growth and development of the East San Rafael area and is an assessment under the Improvement Bond Act of 1915.

All areas to be filled are within existing levees and are not subject to tidal action. The area to be filled which is subject to Corps permit is generally flat, level land ranging in elevations from -0.1 to 2.0 feet. (Elevation datum mean lower low water. Engineering Sheet #1).

The main levee is at elevation 11 to 13 feet and is 18 to 27 feet wide at the top. Interior dikes range in elevation between 6 and 14 feet, MLLW. (Engineering Sheets 2 and 3).

The site is underlain by soft and compressible silty clays commonly referred to as "Bay Mud" and is relatively impervious. The mud depth increases from approximately 50 feet on the west to approximately 80 feet on the east.

Landfill Description

The purpose of the compacted landfill operation is to raise the level of the existing ground to comply with or exceed the standards set forth in the City of San Rafael Elevation Ordinance No. 1049. The purpose is to prevent flooding of the land and provide adequate drainage so that the land can then be used in accordance with the City of San Rafael General Plan.

The compacted landfill operation consists of excavating cells, filling the cells with debris and earth - no food garbage or putrescible material is used - and then covering the compacted debris with at least two feet of inert material. The earth excavated is used to build interior dikes

-2-
A-12

Engineering Sheets

1. Location Map from USC5 Maps San Rafael, California, NE/4 Mt. Tamalpais 15-quadrangle, N3752.5-W12230/75 and San Quentin, California, N3752.5-W12222.5/7.5 and existing elevations.
2. Cross sections of existing exterior dike.
3. Cross sections of existing exterior and interior dikes.
4. Proposed fill and existing fill areas.

Exhibits

5. List of Adjacent Property Owners.
6. San Francisco Regional Water Quality Control Board Resolution 69-2.
7. Copy of letter to Regional Water Quality Control Board, San Francisco Bay Region, requesting certification to U.S. Army, Corps of Engineers.
8. Letter of request for definition of jurisdiction to San Francisco Bay Conservation Development Commission.
9. Letter from Harding, Lawson & Associates, Consulting Engineers, regarding construction of exterior levees.

If any additional information is required, please so advise.

Sincerely,

Martin J. Bramante
President

A-13
-4-

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
100 MCALLISTER STREET
SAN FRANCISCO, CALIFORNIA 94102

PUBLIC NOTICE NO. ~~2400~~ 9344-47

TO WHOM IT MAY CONCERN:

27 July 1973

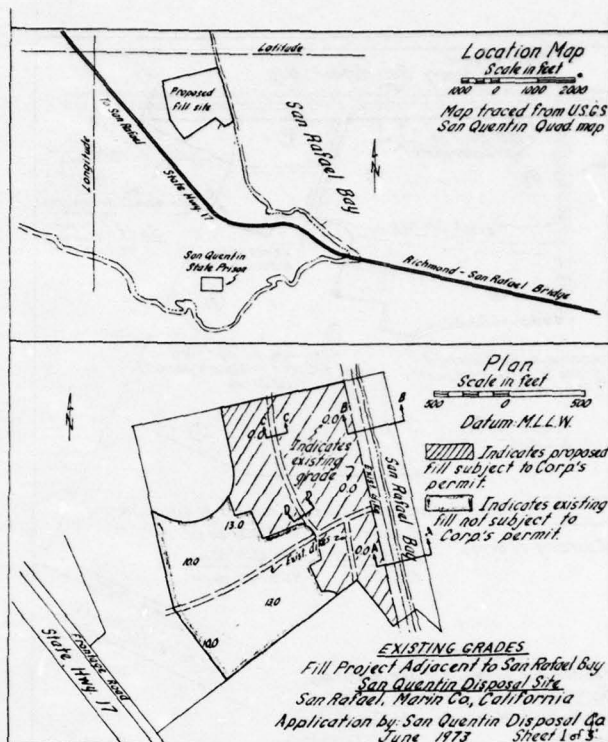
The San Quentin Disposal Company, P.O. Box 2126, San Rafael, California, has applied for a Department of the Army permit to fill approximately 21 acres of land shoreward of dikes previously permitted on San Francisco Bay, approximately one mile north of San Quentin Point, in San Rafael, Marin County, California. The location of the site and details of the fill are shown on the drawings accompanying this notice.

The filling operation would consist of the deposition of approximately 625,000 cubic yards of debris (excluding food garbage or putrescible material) and 275,000 cubic yards of cover material over the debris. The debris would be deposited in excavated cells, with the excavated material being used for interior dikes around the cells and for covering the compacted debris. Additional earth fill would be imported to supplement the excavated material being used for covering the debris. In addition to the 21 acres of fill for which this permit is requested, the applicant has filled or is currently filling an area of approximately 20 acres which is not subject to the Corps' permit jurisdiction. The applicant states that the total area concerned would be developed for planned light industrial and professional services in accordance with the General Plan of the City of San Rafael.

A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining State assent to the work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.

A-15

DOCUMENT A-

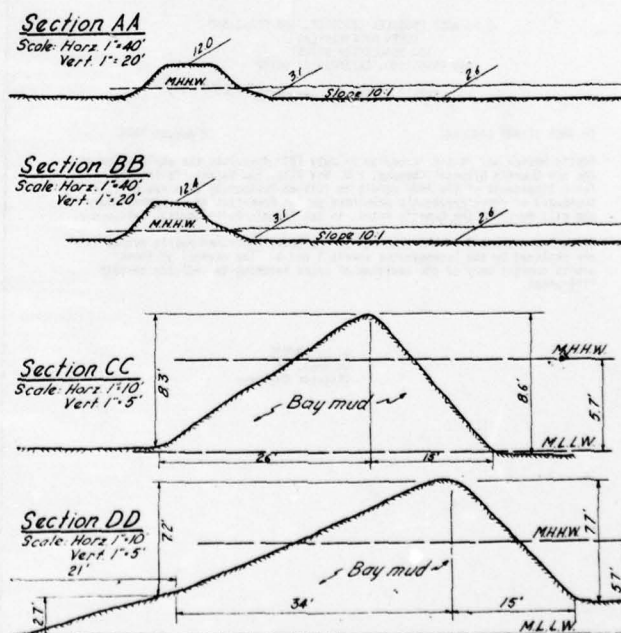


It appears that the nature of the proposed project is such that the preparation of an Environmental Impact Statement (EIS) by the Corps of Engineers may be required before a decision could be made to issue the requested permit.

Any person who has an interest which may be adversely affected by the issuance of a Corps of Engineers' permit for the work described in this notice may request a public hearing. The request must be submitted in writing to the District Engineer within thirty (30) days of date of this notice and must clearly set forth the interest which may be adversely affected by the activity.

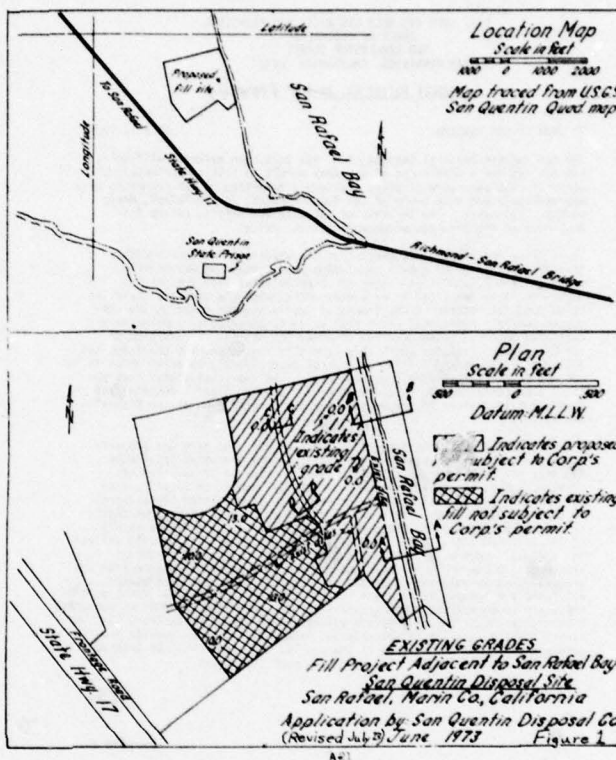
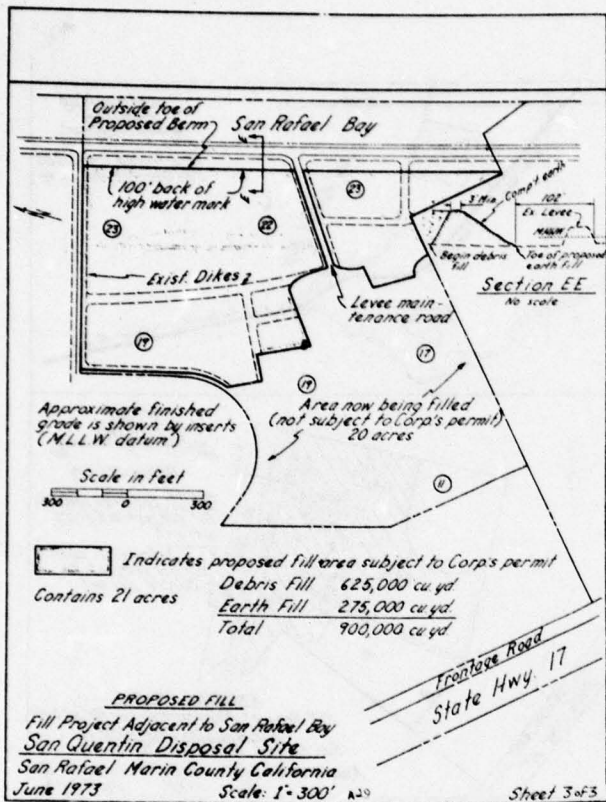
Interested parties may also submit in writing any objections that they may have to the proposed work. Objections should be forwarded so as to reach this office not later than thirty (30) days from date of this notice.

J. L. LAMMIE
Colonel, CE
District Engineer



CROSS-SECTIONS OF EXISTING DIKES
Fill Project Adjacent to San Rafael Bay
San Quentin Disposal Site
San Rafael, Marin County, California
June 1973 A-16 Datum: MLLW Sheet 2 of 3

A-16



U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
100 McALLISTER STREET
SAN FRANCISCO, CALIFORNIA 94102

PUBLIC NOTICE NO. ~~74-0-9~~ 9344-47

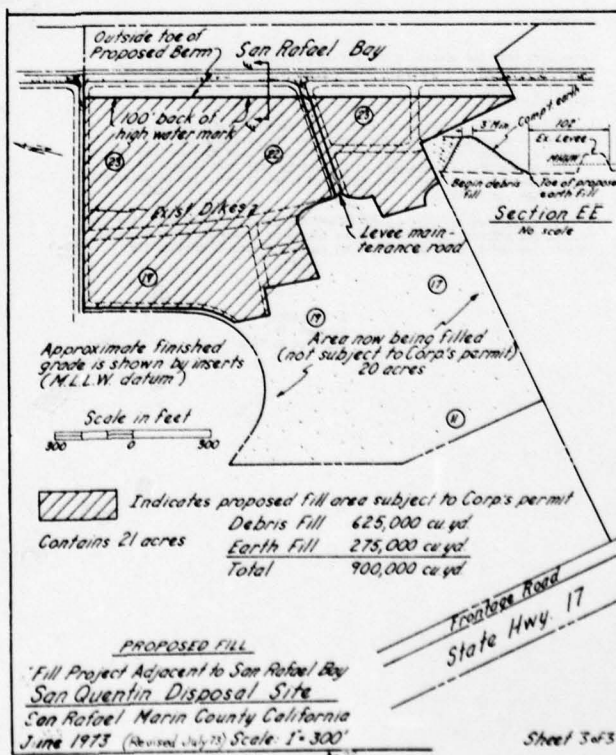
TO WHOM IT MAY CONCERN:

8 August 1973

Public Notice No. 74-0-9 issued on 27 July 1973 described the application of the San Quentin Disposal Company, P.O. Box 2126, San Rafael, California, for a Department of the Army permit to fill approximately 21 acres of land shoreward of dikes previously permitted on San Francisco Bay, approximately one mile north of San Quentin Point, in San Rafael, Marin County, California.

Sheet 1 and sheet 3 of the drawings in the above described public notice are replaced by the accompanying sheets 1 and 3. The changes on these prints consist only of the addition of cross hatching to indicate certain fill areas.

J. L. LAMMIE
Colonel, CE
District Engineer



(B)

December 26, 1973



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
311 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94101

SPNCO-IN

18 January 1977

PUBLIC NOTICE NO. 9441-17 RESPONSE REQUIRED BY 18 February 1977

The District Engineer
U. S. Army Engineers
San Francisco District
100 McAllister St.
San Francisco, CA 94102

#9441-47

Dear Sir:

I request a permit to finish the fill on my approximately 26 acres in East San Rafael, California. There are approximately 9 acres around the periphery of my land which still require some fill. I estimate that it will take approximately 100,000 cubic yards of material to finish this fill. The bulk of my land was filled in years past and all fill will be placed behind the existing levee which was built years ago.

I enclose a small plan showing the location of my property and the pertinent information required.

The adjacent property owners are Leo Cecotti, 645 Tamalpais Drive, Corte Madera 94925; Francisco Co., 616 Canal Street, San Rafael 94901; Harold Parish, 1420 Grand Avenue, San Rafael 94901; and Fairview Lands, Inc., 625 Jacoby Street, San Rafael 94901.

Sincerely,

Herbert Norman
Dr. Haskell Norman

TO WHOM IT MAY CONCERN:

1. Dr. Haskell Norman, through his agent, Coldwell, Banker and Company, 500 Sir Francis Drake Boulevard, Greenbrae, California 94904 (telephone 415-661-0020) has applied for a Department of the Army permit for the placement of approximately 100,000 cubic yards of dry fill on a 9-acre portion of his 26-acre parcel. The proposed fill site is located in an area of former tidelands adjacent to State Route 17 and north of Point San Quentin in San Francisco Bay at East San Rafael, Marin County, California as shown on sheet 1 of the attached two drawings.

2. Prior to the construction of a levee in 1956, the area was tidelands and was a valuable feeding area for shorebirds, waterbirds, and waterfowl. Since 1956, the entire area has received varying amounts of fill and is now of little wildlife value except as a resting area. There are two places within the proposed fill area which had been used as storm water runoff storage ponds during the winter rainy season. These two ponds are no longer required as water storage ponds with the completion of a storm water runoff system by the City Water District of San Rafael. There is some vegetation and also temporary bird sanctuary during the winter but during the summer, the ponds dry out and support no life. The proposed fill, clean earth and broken rock from a borrow source, would bring the 9-acre parcel to an elevation of 10.5 feet above mean lower low water (MLLW) datum, which would be approximately the same elevation as the remaining 17 acres. The 17 acres have been filled under Department of the Army Permit No. 56-47 issued 28 March 1956. The original fill operation was not completed prior to 31 December 1959, the date on which this permit expired, therefore, any subsequent filling would require a new permit. The applicant states that the proposed fill would be used for an unspecified development.

3. The applicant has applied to the California Regional Water Quality Control Board, San Francisco Bay region, for certification in response to the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500), and to the San Francisco Bay Conservation and Development Commission for a permit.



SEE PHONE BOOK

AGENT

ROBERT E. RICH

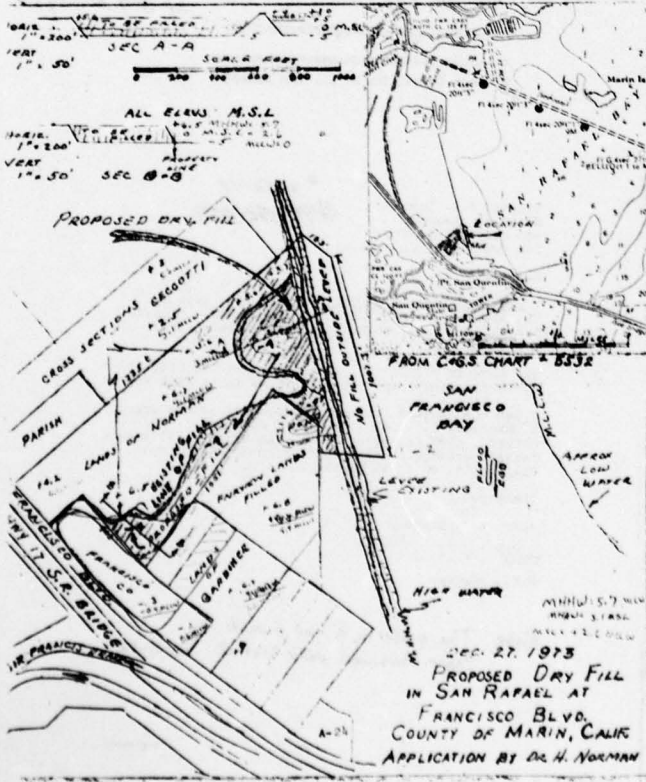
DOCUMENT A-7

A-23

Coldwell Banker
RESIDENTIAL SALES AND LEASING
2500 SAN FRANCISCO DR. SUITE 200
SAN FRANCISCO, CALIFORNIA 94115
TELEPHONE 441-2000

A-25

DOCUMENT A-8



SPNCO-IN

18 January 1977

PUBLIC NOTICE NO. 9441-17

4. In accordance with the requirements of the National Environmental Policy Act of 1969 (Public Law 91-190), the Corps of Engineers has made a preliminary assessment of the environmental, engineering, economic, and social aspects of the proposed activity, and determined that an Environmental Impact Statement (EIS) will be necessary. These aspects will be discussed in detail in EIS. Requests for copies of the draft EIS should be submitted in writing and directed to the attention of the Environmental Branch of this office, at the address given above. The proposed activity does not involve property listed in the National Register of Historic Places.

5. A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it eliminate the necessity of obtaining State assent to the work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.

6. Evaluation of this activity's impact on the public interest will also include application of the guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 406(b), of the Federal Water Pollution Control Act of 1972, 33 U.S.C. Section 1346(b), and (if applicable) Section 102(a) of the Marine Protection, Research, and Sanctuaries Act of 1972, 33 U.S.C. Section 1412(a). Any person who has an interest which may be adversely affected by the issuance of a Corps of Engineers' permit may request a public hearing. The request must be submitted in writing to the District Engineer within thirty (30) days of the date of this notice and must clearly set forth the interest which may be adversely affected and the manner in which the interest may be adversely affected by the activity. This paragraph concerning guidelines and public hearings applies only to activities involving the discharge of dredged or fill materials in the navigable waters or the transportation of dredged materials for the purpose of dumping it in ocean waters.

2

A-26

18 January 1977

7. Interested parties may submit in writing any comments that they may have on the proposed work. Comments should include the number and date of this notice and should be forwarded so as to reach this office within thirty (30) calendar days. It is the Corps' policy to forward any such comments which include objections to the applicant for resolution or rebuttal. If the objecting party so requests, that person's name will be deleted from the forwarded letter or the objections will be paraphrased in summary form. In such cases, however, it should be noted that the applicant cannot be requested to resolve such objections directly but can only rebut them by responding to the District Engineer. Details of any changes of a minor nature which are made in the final permit action will be provided on request.

H. A. FLERTZHEIM, JR.
Colonel, CE
District Engineer

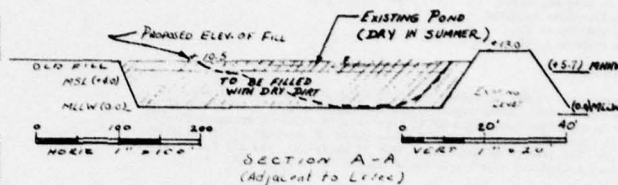
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A-27

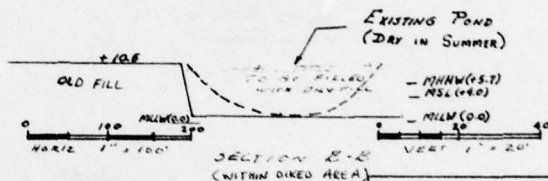
PX 9441-47

SHEET 2 OF 2

CROSS-SECTIONS



ALL FILLS ARE INSIDE LEVEE BUILT
UNDER PERMIT NUMBERED
56-47



DATUM = MLLW

PROPOSED DRY FILL
IN SAN FRANCISCO BAY (NORTH)
AT SAN RAFAEL, CALIF.
ALONG FRANCISCO BLVD.
COUNTY OF MARIN
APPLICATION BY DR. H. NORMAN
REV. JAN 1977

A-29

PV 9441-47

W. K. McLELLAN CO.
GENERAL ENGINEERING CONTRACTOR

77 Mark Drive, Suite 21, San Rafael

4198
S.F. Bay N. Log 93

Colonel J.L. Lammie
District Engineer
100 McAllister Street
San Francisco, Ca. 94102

Dear Sir:

I request a Permit to Fill Portion Tide Lots 15, 16, 18, and 19, Salt Marsh and Tidelands map no. 2, San Rafael, California, as shown on the attached drawings.

The site is within the jurisdiction of the City of San Rafael and I have applied there for a Fill Permit.

I own the subject lot and the adjacent owners are: H. Haskell, P.O. Box 1053, Ross, California; D. Dorward, 1637 Francisco Blvd., San Rafael, California; Seaside Company, 4182 Redwood Highway, San Rafael, California, as shown on Map Sheet 2.

Thank you.

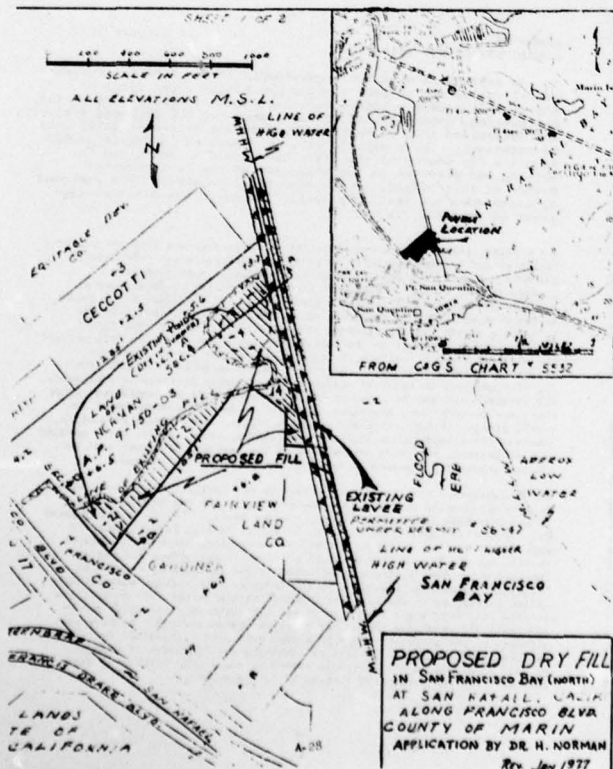
Very truly yours,

W.K. McLellan

Note: The property is now owned by
Marin Municipal Water District. See A-32

A-30

DOCUMENT A3





—Keep Freedom in Your Fingers With U.S. Savings Bonds

1 April 1975

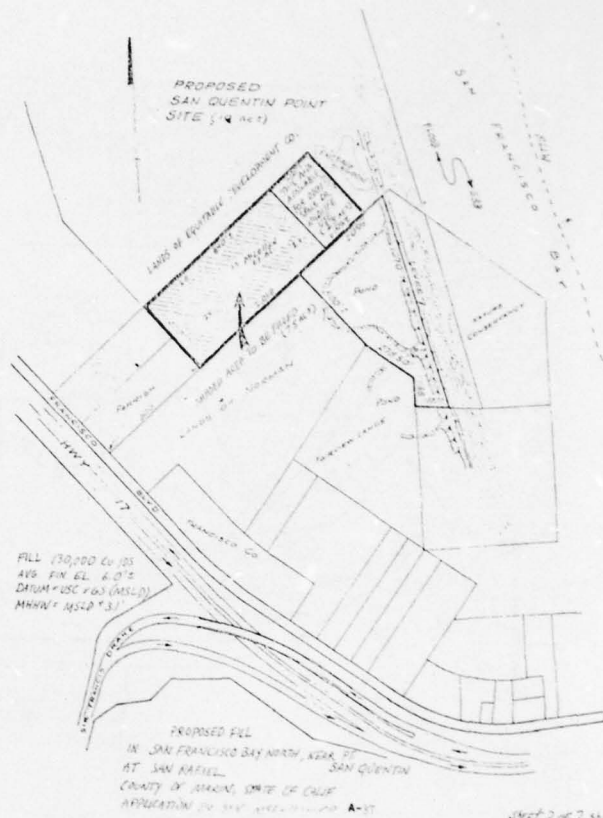
6. A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it eliminate the necessity of obtaining State assent to the work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. A permit will be granted unless its issuance is found to be in the public interest.

7. Any person who has an interest which may be adversely affected by the issuance of a Corps of Engineers' permit may request a public hearing. The request must be submitted in writing to the District Engineer within thirty (30) days of the date of this notice and must clearly set forth the interest which may be adversely affected and the manner in which the interest may be adversely affected by the activity.

8. Interested parties may also submit in writing any comments that they may have on the proposed work. Comments should be forwarded so as to reach this office not later than thirty (30) days from the date of this notice. It is the Corps' policy to forward any such comments which include objections to the applicant for resolution or rebuttal. If the objecting party so requests, his name will be deleted from the forwarded letter or the objections will be paraphrased in summary form. In such cases, however, it should be noted that the applicant cannot be requested to resolve such objections directly but can only rebut them by responding to the District Engineer.

H. A. FLERTZHEIM, JR.
Colonel, CE
District Engineer

2
A-35



Sheet 2 of 2



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
311 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94101

SPNCO-RN
No. 9542-47

Mr. J. Dietrich Stroeh
Marin Municipal Water District
220 Wallen Avenue
Corte Madera, California 94925

7 - MAR 1978

Dear Mr. Stroeh:

This is in response to your letters dated 31 January 1978 and 10 February 1978 requesting a more exact determination of Corps of Engineers regulatory jurisdiction over property proposed as a storage area owned by the Marin Municipal Water District (Parcel 9-290-30), located in the East San Rafael Baylands Redevelopment Area, adjacent to San Francisco Bay, city of San Rafael, Marin County, California.

We have completed our review of the drawing dated 9 February 1978 (inclosure 1) marked "SAN QUENTIN POINT - LEVEL OF EXISTING FILL AT THE SAN QUENTIN YARD SITE", and other substantiating photographic evidence.

The information that you have submitted and that we have acquired is sufficient to determine administratively that the proposed activity would not involve the discharge of dredged or fill material into a water of the United States (including adjacent wetlands) pursuant to Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1344; 86 Stat. 816) and would be conducted in an area which was filled prior to 18 January 1972 above the elevation reached by the mean of the higher high waters pursuant to Section 10 of the River and Harbor Act of March 1899 (33 U.S.C. 403; 30 Stat. 1151). Therefore, at the present time, a Department of the Army permit will not be required for the work as described in your letter of 10 February 1978 and shown on inclosure 1 as Parcel "A". Those areas designated as Parcel "B" and "C" on inclosure 1 are still subject to the FES for the East San Rafael Baylands Area and will continue to be processed under your existing permit application (No. 9542-47).

A-35

DOCUMENT 11



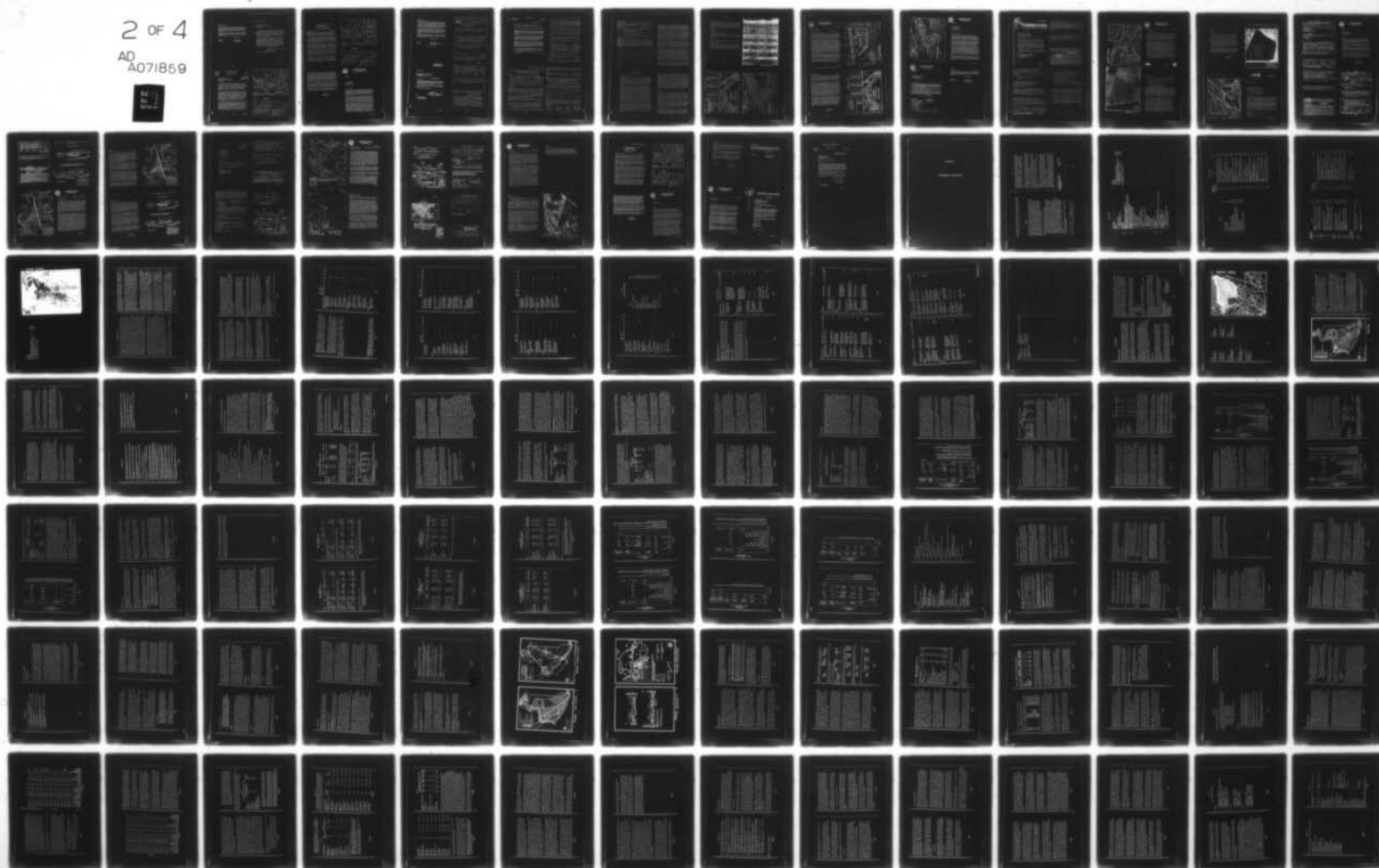
AD-A071 859 CORPS OF ENGINEERS SAN FRANCISCO CALIF SAN FRANCISCO--ETC F/G 6/6
EAST SAN RAFAEL BAYLANDS DEVELOPMENT REGULATORY PERMIT APPLICAT--ETC(U)
JUN 79

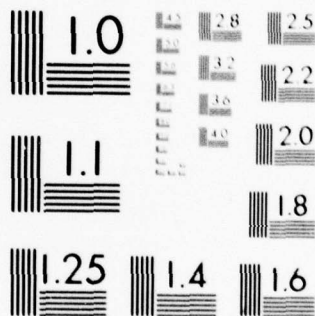
UNCLASSIFIED

NL

2 OF 4

AD
A071859





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

BAGLEY, BIANCHI AND SHEEKS

SPNCO-31
Mr. J. Dietrich Stroch

However, we request that you notify this office when your work is scheduled to start, as it may be interpreted as an unauthorized activity by concerned members of the public. We also ask that you notify us upon completion of your project so as to enable our inspection staff to determine that no work was performed in our jurisdiction without proper authorization.

If you have any questions, please call Mr. D. W. Corone of our Regulatory Functions Branch (telephone 415-556-5426). Please address all written correspondence to the District Engineer, and refer to the file number at the head of this letter.

Sincerely yours,

1 Inclosure
A-40

JAMES C. WOLFE
Chief, Construction-
Operations Division

District Engineer
U. S. Army Corps of Engineers
March 29, 1973
Page Two

Adjacent property owners are Mr. Fred Grange of 2031 Francisco Boulevard, San Rafael, California who owns the property to the east. Ghilotti Brothers of 525 Jacoby Street, San Rafael, California who own the property northeast and Holiday Magic, Inc. of 616 Canal Street, San Rafael, California who own the property on the northwest. Some of these owners carry the property in different names but these are the real owners.

The fill will be obtained from various construction projects in the vicinity of San Rafael. It will be placed, spread and compacted by Mr. Fred Grange under the soil engineering direction of Mr. Eugene A. Miller who is referred to above. The Bay Conservation and Development Commission has stated in a letter dated January 30, 1973 (a copy of which I have previously forwarded to you) that the Commission does not have any jurisdiction over this property. Mr. Rial of the Regional Water Quality Control Board has indicated by telephone to Mr. Miller that a water quality certification is probably not necessary.

Sincerely yours,

SAMUEL W. GARDNER

SWG:jkb

-2-
A-39

A-41

SAMUEL W. GARDNER
WILLIAM T. BAGLEY
ALBERT BIANCHI
JOSEPH E. SHEEKS
W. CONRAD ROSENBERG
JOHN W. ROSENBERG
HUGH J. CADDEN
JOHN P. NICOLL
GARY P. OSWALD

LAW OFFICES
BAGLEY, BIANCHI AND SHEEKS
1010 B STREET
SAN RAFAEL, CALIFORNIA 94901

AREA COUL. 415
456-6020

March 29, 1973

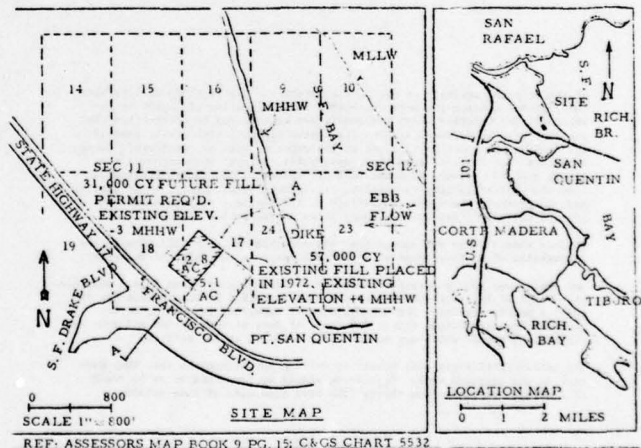
District Engineer
U. S. Army Corps of Engineers
100 McAllister Street
San Francisco, California 94102

Dear Sir:

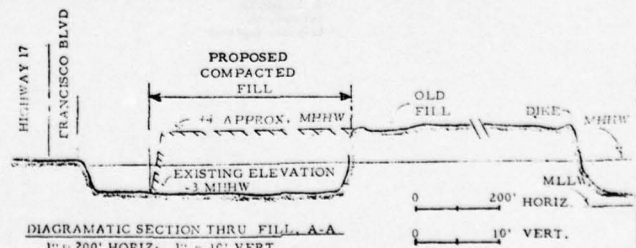
I request permission to fill approximately 7.9 acres of my land located at 2029 Francisco Boulevard, San Rafael, California. These are assessor's parcels 9-150-11, 9-150-12 and 9-150-19. In this matter I am represented by Eugene A. Miller, Civil Engineer, who is with Converse Davis & Associates at 325 Pacific Avenue, San Francisco, California 94111 (Telephone: 391-5225). Mr. Miller will submit a drawing and such other material herewith as he deems to be appropriate.

The site is presently several hundred feet landward of existing protective dikes but a portion of it is below mean higher high water. The principal really low area is about 2.8 acres in extent and is only a small portion of the whole. It may be that no application is required except on this presently very low area which is below mean higher high water. Work will however be done on the entire three assessor's parcels and I presume it is appropriate to get a permit on the whole thing. I understand that you are principally concerned with the area below high water but I don't want to run into difficulties as a result of a permit which is too limited.

The levy or dike which is several hundred feet eastward was put in by Associated Dredging Company, about 1957. At that time I personally obtained a permit from the Corps of Engineers in the name of San Rafael Sanitation District, Marin Canalways & Development Company and possibly Associated Dredging Company to allow this construction to proceed. It is my understanding that the Corps is unable presently to locate that original permit but I know I obtained it and several of us can swear to it. So much time has gone by and so many files exist that it cannot be found at this time.



REF: ASSESSORS MAP BOOK 9 PG. 15; C&GS CHART 5532



NOTE: All proposed fill areas is landward of existing dikes and other filled areas. Area lies within previous permit issued to Marin Canalways & Development Company, 128/36.

PROPOSED FILL
In/Adjacent to: San Francisco Bay
At: San Rafael, Marin Co., Calif.
Application by: Samuel W. Gardner
Date: 29 March 1973
Revised: 24 May 1973

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DOCUMENT A12

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U. S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
100 McALLISTER STREET
SAN FRANCISCO, CALIFORNIA 94102

PUBLIC NOTICE NO. 10-4-73 97/5-47

TO WHOM IT MAY CONCERN:

30 August 1973

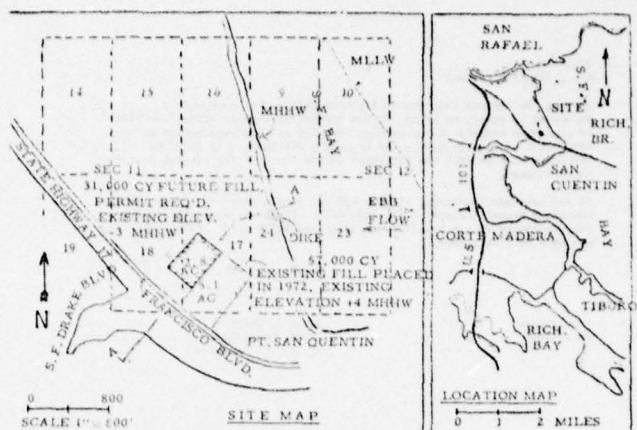
Samuel W. Gardiner, Law Offices of Bagley, Bianchi and Sheeks, 1010 B Street, San Rafael, California 94901, has applied for a Department of the Army permit for an existing fill on 5.1 acres of property and to place fill material on 2.8 acres of property shoreward of an existing dike in San Francisco Bay, near Pt. San Quentin, Marin County, California.

The project area is shoreward of a dike which was permitted and constructed under Department of the Army Permit No. 56-47, issued on 28 March 1956. After the completion of the dike, substantial filling occurred in the area without the requirement of a permit. However, due to a recent change in Corps of Engineers policy and regulations, a permit is required for filling in former tidelands which are shoreward of levees and dikes and below the elevation of mean higher high water.

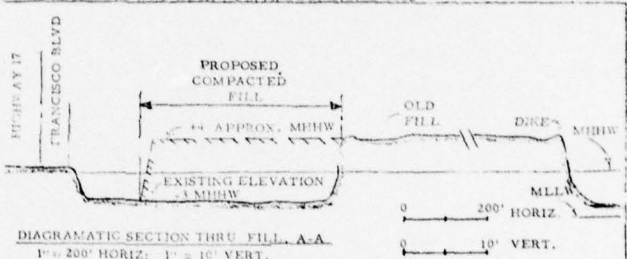
In 1972, 5.1 acres were filled with approximately 57,000 cubic yards of material, consisting primarily of imported earth. The filling was accomplished subsequent to the change in Corps of Engineers policy requiring permits, and reportedly was done without the applicant's knowledge of the change. The ground elevation prior to filling was 3 feet below mean higher high water (2.7 feet above mean lower low water). The existing elevation is 4 feet above mean higher high water (9.7 feet above mean lower low water).

The applicant proposes to fill an additional 2.8 acres of property with approximately 11,000 cubic yards of material consisting of earth and broken rock. The fill would be compacted and placed under the supervision of a soils engineer. The present and proposed elevations of the ground are as described above for the 5.1 acres. This work would not completely fill the area the applicant owns and the applicant has no immediate plans for any buildings or other structures on the filled area.

A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringements of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining State assent to the work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact



REF: ASSESSOR'S MAP BOOK 9 PG. 15, CAGS CHART 5532



NOTE: All proposed fill areas is landward of existing dikes and other filled areas, and lies within previous permit issued to Arin Canals & Development Company, 1/28/56.

PROPOSED FILL
In/Adjacent to: San Francisco Bay
At: San Rafael, Marin Co., Calif.
Application by: Samuel W. Gardiner
Date: 29 March 1973
Revised: 24 May 1973

A-43 DOCUMENT A13



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

18 AUG 1973

of the proposed activity on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economy, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.

At this time it does not appear that the proposed activity will require the preparation of an Environmental Impact Statement by the Corps of Engineers.

Any person who has an interest which may be adversely affected by the issuance of a Corps of Engineers permit for the work described in this notice may request a public hearing. The request must be submitted in writing to the District Engineer within thirty (30) days of date of this notice and must set forth the interest which may be adversely affected by the activity.

Interested parties may also submit in writing any objections that they may have to the proposed work. Objections should be forwarded so as to reach this office not later than thirty (30) days from date of this notice.

J. L. LAMMIE
Colonel, CE
District Engineer

SPCOC-EN
No. 9715-47

Mr. Manou Movassate
c/o Roots Construction
1143 Crane Street
Menlo Park, CA 94025

Dear Mr. Movassate:

This is in response to your letters dated 6 February 1973 and 3 March 1973 requesting a more exact determination of Corps of Engineers regulatory jurisdiction over three parcels of land, located adjacent to San Francisco Bay, in the East San Rafael Baylands, within the city of San Rafael, Marin County, California. They are identified on the Marin County Assessor's Map Bk 9-Pg 29 (revised 23 February 1977) as parcel numbers 20, 21, and 35.

On 29 March 1973, Mr. Samuel Gardiner applied for a Department of the Army permit to both retain fill, and place additional fill material on 7.9 acres of land within the East San Rafael Baylands area. Parcels 20, 21, and 35 (comprising approximately 2.5 acres), which you recently purchased, were included in Mr. Gardiner's permit application. At the time of Mr. Gardiner's application, he indicated he was uncertain as to whether the entire 7.9 acres were within Corps regulatory jurisdiction.

We are now completing a review of our files, fill and grading permits issued by the city of San Rafael, and other substantiating photographic evidence. The information that you have submitted and that we have acquired is sufficient to determine administratively that the proposed fill activity on parcel numbers 20, 21 and 35 would not involve the discharge of dredged or fill material into a water of the United States (including adjacent wetlands) pursuant to Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (16 U.S.C. 1344; 86 Stat. 810) and would be conducted in an area which was filled prior to 18 January 1972 above the elevation reached by the mean of the higher high waters pursuant to Section 10 of the River and Harbor Act of March 1899 (16 U.S.C. 403; 30 Stat. 1151). Therefore, at the present time, a

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DOCUMENT A14

SPMCO-BN
Mr. Manu Movassate

Department of the Army permit will not be required for the placement of additional fill material for the future development of parcels 20, 21, and 38 as outlined in red on the enclosed Assessor's Map marked 9-190-20, 21 and 38. Those areas designated as parcels 25, 26, 23, 36, and 37 (among others not originally a part of application 9715-47) on Inclosure 1 are still subject to Corps regulatory jurisdiction and permit application 9715-47 will continue to be processed under the Federal composite Environmental Statement for the East San Rafael Baylands Area.

We do request, however, that you notify this office when your work is scheduled to start, so it may be interpreted as an unauthorized activity by concerned members of the public. We also ask that you notify us upon completion of your project so as to enable our inspection staff to determine that no work was performed in our jurisdiction without proper authorization.

If you have any questions, please call Mr. D. W. Ceresa of our Regulatory Functions Branch (telephone 415-556-3426). Please address all written correspondence to the District Engineer, and refer to the file number at the head of this letter.

Sincerely yours,

1 Inclosure
As stated

JACK E. FARLESS
Assistant Chief, Construction-
Operations Division
CA (No. 9715-47)

2
A-47

Forrest R. Morphew
1851 Francisco Blvd.
San Rafael, Calif. 94901
Phone: 455-0961

December 1, 1978

District Engineer, Dept of the Army
San Francisco District Corps of Engineers
211 Main Street
San Francisco, Calif. 94105

Attn: Mr. Ceresa, Engineer

Dear Mr. Ceresa:

As discussed with you via phone, in the interest of efficiency, I hereby request that my application for Fill Permit (PM 12664-47) be combined with one previously submitted by Samuel W. Gardiner (Application No. 9715-47) on the same property.

Also as discussed, sometime within the next two weeks I shall make an appointment and get into your office to discuss this matter with you.

Thank you for your assistance.

Sincerely,

Forrest R. Morphew
Forrest R. Morphew

FRE/s

cc: Samuel W. Gardiner
170 La Costa Drive
Greenbrae, Calif. 94033

APPLICATION FOR A DEPARTMENT OF THE ARMY PERMIT		
One set of original drawings and two copies which show the location and character of the proposed activity must be attached to this application (see simple drawings and checklist).		
1. Application number (To be assigned by Corps)	2. Date	3. For official use only
10449-53	4 3 75 Day Mo Year	
4. Name and address of applicant		
Marina Vista Improvement Club C/O M. H. Cheney 6630 Heartwood Dr. Oakland, CA 94607		
Telephone number 339-0665 Social Security No. 554-60-7660		
5. Name, address, and title of applicant's authorized agent for permit application coordination		
NAME Telephone Number		
6. Describe the proposed activity, its purpose and intended use, including a description of the type of structures, if any to be erected on fills, or pile or float supported platforms, and the type, composition and quantity of materials to be discharged or dumped and means of conveyance.		
Maintenance dredging of approximately 8000 c.y. from the Marina Vista Canal with disposal at a nearby diked land disposal site in accordance with the attached drawings.		
7. Proposed use Private <input checked="" type="checkbox"/> Public <input type="checkbox"/> Commercial <input type="checkbox"/> Other <input type="checkbox"/> (Explain in remarks)		
8. Name and address of adjoining property owners whose property also adjoins the waterway.		
see attached list on drawings		
9. Location where proposed activity exists or will occur.		
See _____ Top _____ Rte _____ (Where applicable) Calif. _____ Marin _____ San Rafael _____ State County City or Town		
10. Name of waterway at location of the activity Marina Vista Canal		
FORM 1 4345 REPLACES ENGINEERING FORM 4345-1 PART A1 MAY 71 (EP 1145-2-1) ENG 1 APR 74 AND 4345-1 PART B1 JUN 71, WHICH ARE OBSOLETE		

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A-10

DOCUMENT A16

Date activity is expected to be completed September 5, 1975				
12. Is any portion of the activity for which authorization is sought now complete? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If answer is "Yes" give reasons in the remarks section. Month and year the activity was completed. Indicate the existing work on the drawings.				
13. List all approvals or certifications required by other Federal, interstate, state or local agencies for any structures, construction, discharges, dredging or other activities described in this application.				
Issuing Agency	Type Approval	Identification No.	Date of Application	Date of Approval
City of San Rafael	use permit	UP 74-88	10/18/74	12/19/74
BCDC	permit		3/4/75	
RWQCB	certification		3/4/75	
14. Has any agency denied approval for the activity described herein or for any activity directly related to the activity described herein? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If "Yes" explain in remarks)				
15. Remarks (see paragraph 3 of Permit Pamphlet for additional information required for certain activities)				
see attached BCDC application				
16. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.				
Signature of Applicant <i>M. H. Cheney</i> M. H. Cheney				
18 U.S.C. Section 1001 provides that: Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or utters any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than five years, or both.				
The application must be signed by the person who desires to undertake the proposed activity; however, the application may be signed by a duly authorized agent if accompanied by a statement by that person designating the agent and agreeing to furnish upon request, supplemental information in support of the application.				
If the activity includes the discharge of dredged or fill material in navigable waters or the transportation of dredged material for the purpose of dumping it in ocean waters, the application must be accompanied by a fee of \$100 for resources exceeding 2500 cubic yards and \$10 for quantities of 2500 cubic yards or less. Federal, State and local governments are excluded from this requirement.				

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DOCUMENT A15

April 8, 1975

TO: Dredging permitting and reviewing agencies
FROM: M. H. Cheney representing Marina Vista Improvement Club
SUBJECT: Revision of application D-75-2 (Marks Bill number)

BACKGROUND: The subject project involves maintenance dredging approximately 8000 cubic yards with land disposal at a diked upland site. The project permit application is being handled under provisions of the Marks Bill through the BCDC Permit Coordinator.

A small portion of the disposal site is below the elevation of MHHW (5.6 ft.). The U. S. Army Corps of Engineers cannot issue a permit for disposal in areas below MHHW until an EIS for the entire area, which is currently being prepared, is completed (in about a year from now). The applicant cannot wait a year before conducting dredging operations.

REVISION: It is proposed to separate the disposal site into areas above and below MHHW by isolating those below MHHW with dikes. With the dikes in place, no disposal of dredged material from this project will occur in areas below MHHW. The proposed isolation dikes will be constructed of local material and will be outside of BCDC jurisdiction.

Please substitute the attached drawing, sheet 2 of 3, for that in your application package and add this correspondence to your application package for this project.

Should you have any questions concerning this revision, please contact me.

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3. Updated since: _____
4. Agency Application No.: _____

APPLICATION FOR DREDGING PERMIT OR
CERTIFICATION FOR ALL MAINTENANCE DREDGING AND ANY
NEW DREDGING OF LESS THAN 100,000 CUBIC YARDS

APPLICANT

1. Owner's Name: Marina Vista Improvement Club	Owner's Representative (if any): M. H. Cheney
2. Address: 66 Sea Way San Rafael, CA 94901	Address: 6630 Heartwood Dr. Oakland, CA 94607
3. Telephone No.: 453-1313	Telephone No.: 339-0665
4. Applicant's Name (if different than Owner): same	Applicant's Representative (if any): same
5. Address: _____	Address: _____
6. Telephone No.: _____	Telephone No.: _____

CERTIFICATION

I certify that the information in this application and all accompanying exhibits is full, complete, and correct, and understand that misstatement or omission of such information, whether unintentional or not, shall be grounds for suspension or revocation of the permit.

Signature of applicant (or representative): M. H. Cheney
Date of signature: March 4, 1975

If signer is applicant's representative: Has evidence that representative may bind applicant been included (Yes) No

If applicant is not the owner: Owner's name: M. H. Cheney
Has evidence that applicant may bind owner been included (Yes) No

OBJECT

- Project Name (if any): Marina Vista Canal maintenance dredging
- One Sentence Description of Work: Conduct routine maintenance dredging of the Marina Vista Canal with disposal on land.
- One Sentence Statement of Purpose of Dredging: To provide adequate

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County: Marin

- City(ies) if any (if unincorporated, name of community or other general area): San Rafael
- Assessor's parcel number or other brief legal description if property is not defined as such: Disposal site: 40 Yards - 100 Yds. of disposal site: parcel A, book 6 of maps, page 4, Marin County records.
- The names, addresses, and phone numbers of adjacent property owners or residents are:
NORTH: See attached drawing
SOUTH: _____
EAST: _____
WEST: _____
- Does the work fall within the boundaries of BCDC as set forth in the Neatser-Petris Act? Yes

OWNERSHIP

- Is the property involved in this application in common ownership with any adjacent or nearby property? No. If so, do you intend to apply for a dredging permit for work on such property within the next twelve months? No.
- The project site is X owned in fee by the applicant subject to SLC lease grant lands subject to public trust.

SCOPE (General)

- The work involves dredging 8000 cubic yards of material and depositing 8000 cubic yards of spoil at adjacent land disposal site.
- The work involves placing 5000 cubic yards of unconditioned fill over 421,000 square feet of surface area of placing 0 square feet of structure or 0 pilings or cantilevered over 0 square feet of bay surface area, and/or 0 square feet of a marsh, and/or 0 square feet of a salt pond, and/or 0 square feet of a managed wetland, and/or 0 square feet of a certain waterway.
- The work does not involve placing fill, grading, constructing structures, utilities, or other activity within 100 feet inland of the line of highest tidal action.
- The work would cost approximately \$20,000 and would be started on May 5, 1975 and completed on September 5, 1975.

NEW DREDGING

The work does not include new dredging. It is expected that further new dredging of 0 cubic yards of material will be required in the year 0. Maintenance dredging of 8000 cubic yards will be required every 5 years.

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The project does not include maintenance dredging. The last time the area was dredged was in 1970 when 8000 cubic yards of material was removed. It is expected that maintenance dredging will again be required in the year 1980.

EQUIPMENT

The following equipment will be used: _____ mechanical removal dredge; X cutterhead suction pipe dredge; _____ trailing suction hopper dredge; _____ barge (specify _____)

DISPOSAL

Approximately 8000 cubic yards of wet spoil would be deposited at diked land disposal site which is:
a. X a dry land location outside BCDC jurisdiction.
b. _____ a dry land location within BCDC jurisdiction.
c. _____ a BCDC approved fill project.
d. _____ an ocean dumping site approved by EPA.
e. _____ an U. S. Army Corps of Engineers designated dumping site in the Bay.

If "e" above applies, briefly explain why no other alternative dumping site is feasible and briefly describe what investigations were made to find other feasible sites: _____

(Attach additional pages as necessary)

AND DISPOSAL ONLY

The fill will be X unconditioned _____ conditioned

LOCAL APPROVAL

State the approving agencies, types and dates of each local approval that (a) is required, and (b) has been obtained and/or (c) has been applied for including, but not limited to rezoning, subdivision, PUD, engineering, utilities and/or review by planning commissions, or departments, port authorities, special committees, boards of supervisors or city councils, or regional bodies. Indicate the name of the local person knowledgeable about the approval.

Approving Agency	Type of Approval	Date of Approval	Knowledgeable Person (Phone)
<u>City</u>	<u>Use Permit</u>	<u>12/19/74</u>	<u>M. Carrouette 456-1112</u>

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attach a written communication from the City or County so stating.

page 2

PROJECT INFORMATION

Provide the information specified on page ____ through ____ of Section I.

RICH AGENCY CONTACT

Contact was made with:

RWQCB November 25, 1974
(Date of first contact)

BCDC February 26, 1975

SLC

EPA February 26, 1975

Check if no contact has been made:

☐

☐

☒

☐

SUBMISSION TO COE

Please (do ☒ do not ☐) submit this application to the Corps of Engineers for Federal processing. (If you check the "do" box, the Coordinator will give you an application form for use by federal agencies. Submit the federal form to the Coordinator, who will send it to the COE to you. If you check the "do not" box, you must obtain this additional form from the Corps yourself. In any case, you must get permission from the Corps to carry out your project.)

C. Disposal: The proposed disposal site is a diked area of 9.72 acres just across the San Rafael Canal from the dredging site. The area has been used as a disposal site for dredged material in the past. Presently, the area is vacant and unused; its owner has given permission to place the dredged material from this project on the property. The City of San Rafael has expressed interest in acquiring the area for use as a park after it is filled.

Two alternate methods for conveying dredged material into the disposal site are presented on sheet 2 of the attached plans. Alternate one shows the dredge pipe terminating at the northeast corner of the site with discharged slurry directed to the southeast corner by a proposed internal dike. Alternate two shows the dredge pipe placed along the easterly dike to its terminus at the southeast corner. In both cases, the dredge pipe would be submerged across the navigable portion of San Rafael Canal to prevent a hazard to navigation. Alternative one would be selected in lieu of alternate two in the event the selected dredge is incapable of pumping the extra distance.

Although a weir and pipe are in place on the easterly dike and have been used to drain the site during previous disposal operations, the City of San Rafael has prohibited use of the weir in their use permit for the project. It is proposed to drain clarified effluent through a siphon into the San Rafael Canal from an internal weir box located at the northwesterly corner of the disposal site. The relative locations for introduction of dredged slurry and removal of clarified effluent will allow maximum pond retention time.

Assuming the average bottom elevation of the disposal site to be +1.9 ft., the minimum safe dike elevation to be +8.9 ft. and the minimum allowable freeboard to be 1.0 ft., the maximum allowable pond depth would be 2.0 ft. It is proposed to construct an internal weir box 8 ft. square with its top elevation set at +2.5 ft., which would maintain the pond depth at a minimum of 1.6 ft. As the pond elevation increases above the minimum, surface water would overtop the weir box and be siphoned over the dike into San Rafael Canal. Although dredged slurry would enter the disposal site at the rate of approximately 3 cfs for 15 hours per day using a 6" dredge or at approximately 12 cfs for 7 1/2 hours using a 12" dredge, the siphon would be sized to discharge effluent over as many hours as possible per day. The average discharge rate using a 6" dredge would be approximately 1.9 cfs (1.2 mgd) while that for a 12" dredge would be approximately 3.8 cfs (2.4 mgd).

The area available for ponding is 9.72 acres or approximately 423,000 sf. The existing contours indicate the proposed point of slurry entry is one of the deeper areas of the pond and that slurry flow would probably be along the dikes in each direction toward the weir box. Using a 12" dredge as an example (the worst case)

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MARINA VISTA CANAL February 4, 1975

page 3

1. PROJECT DESCRIPTION

A. General: The proposed work includes the routine maintenance dredging of approximately 8,000 cubic yards of natural sediments from the Marina Vista Canal (Canal) with deposition on nearby land which is diked. The dredging will restore the Canal, which is used exclusively for recreational boating, to its original depth of -6 ft. (MLLW datum). Dredging will be conducted over the full length of the Canal, which is approximately 4.55 acres in area. The Canal is surrounded by homes of members of the Marina Vista Improvement Club which is the permit applicant.

B. Dredging: The depths of the Canal and the San Rafael Canal, which provides access to the Bay from the Canal, limit choices of feasible dredging equipment. Of the two types available (clam and hydraulic), only hydraulic dredges can be considered. Although a small clamshell dredge could dig in the shallow depths of the Canal, only a very small barge could be used to remove dredged material. If bottom dumped, the barges would have to be hauled to the Alcatraz disposal site; such a long haul with such a relatively small amount of material would be quite expensive (most barges carrying dredged material in the Bay are from 1000 to 4000 c.y. - this project would have to use a 100 to 200 c.y. size). After loading, the small barge could be hauled alongside the proposed land disposal site and clamshelled out onto the site with a crane; this option would require double handling of the material and equipment to spread the material over the site. Also, moving the barge in the San Rafael Canal while it is unloaded might cause a hazard to navigation in that waterway. Either disposal option using a clamshell dredge would result in unit costs estimated to be in excess of \$6.00 per cubic yard, which would render the project economically infeasible.

It is hoped a 6" hydraulic dredge can be used; up to a 12" dredge would be acceptable. The smaller the dredge size, the more retention time available in the disposal site settling pond. It would probably be acceptable to allow a 6" dredge to work two shifts (15 hrs. net) per day while a 12" dredge would probably have to be limited to one shift (7 1/2 hrs. net) per day to maintain settling pond efficiency. It is estimated that a 6" dredge would remove approximately 1000 c.y. per two shift day while a 12" dredge would remove approximately 2000 c.y. per one shift day at this location. It is estimated that using a hydraulic dredge would result in unit costs of approximately \$2.20 per cubic yard.

and assuming short-circuited flow straight towards the weir box over an area 200 ft. wide by 700 ft. long (140,000 sf or roughly one-third of the available area) with a flow rate of 4.6 cfs (20% increase over the projected average rate of 3.8 cfs to account for variation in siphon rate), the surface loading would be 0.001 cfs; assuming spherical particles with S.G. of 2.5, particles as small as 0.005 mm in diameter should be removed before the flow reaches the weir box. For particles with S.G. of 1.01, 0.074 mm particles would be removed. Retention time would be a minimum of 11.5 hours. The above assumes that a particle will drop vertically through 1.6 ft in its travel across the pond; in fact, only particles on the surface or those agitated at the weir would overtop the weir and enter the siphon in the effluent. Also, the above analysis assumes fresh water; the project will occur in salt water which causes quicker particle precipitation due to aggregation. Should the basin fail to provide compliance with applicable discharge requirements, a gate valve installed on the siphon can be used to immediately stop the discharge of effluent.

2. OWNERSHIP

A. Dredging site: The dredging site, Marina Vista Canal, is owned by the applicant, the Marina Vista Improvement Club, as indicated in the attached title insurance report. A written metes and bounds description of the dredging site is attached. Names and addresses of adjacent property owners are shown on the attached drawings. The applicant has reviewed the title to the site and has indicated that the property is owned in fee with undivided interest; this finding would indicate that the State Lands Commission has no interest in the project.

B. Disposal site: The applicant does not own the proposed disposal site; it is owned by the William J. Purdy Co., as indicated by the attached Grant Deed. A property map of the proposed land disposal site showing lines and bearings is attached. The owner of the proposed land disposal site has authorized the applicant to dispose of dredged material on the site as indicated by the attached Agreement on the subject. Names and addresses of adjacent property owners are shown on the attached drawings.

3. LOCAL REPORT

Consists of attached copies of (1) page 7 from the minutes of the City of San Rafael Planning Commission meeting of 12/19/74 in which the Commission approved a City use permit to accomplish the proposed project and (2) the Environmental Assessment and Notification form of the City of San Rafael Planning Department which indicates a Negative Declaration of environmental impact.

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4. CORPORATE CERTIFICATION

Consists of attached copies of (1) a certified statement containing the names of the corporate president and secretary and the names of those authorized to execute contracts regarding the proposed work; (2) certificate of incorporation issued by the State of California including a certificate of revivor and (3) certified statement that M. H. Cheney is authorized to act as the agent of the applicant in matters pertaining to the proposed project.

5. DRAWINGS

Attached.

6. ENVIRONMENTAL IMPACT STATEMENT

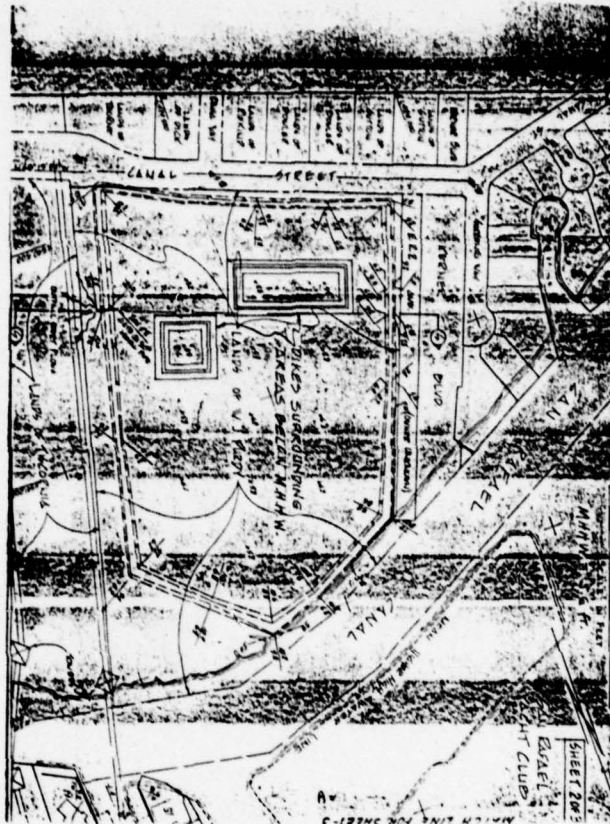
The City of San Rafael, as lead agency, has determined a Negative Declaration of environmental impact for the proposed project as indicated on the attached Environmental Assessment and Notification form.

7. FEES

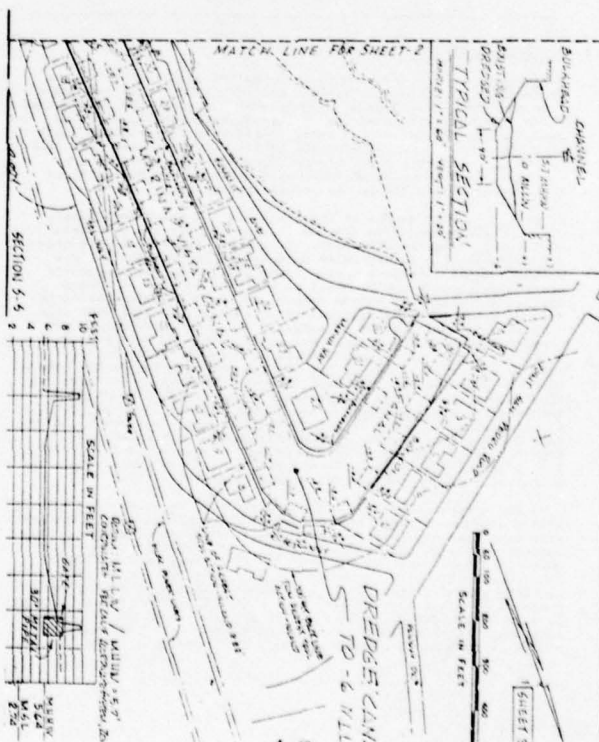
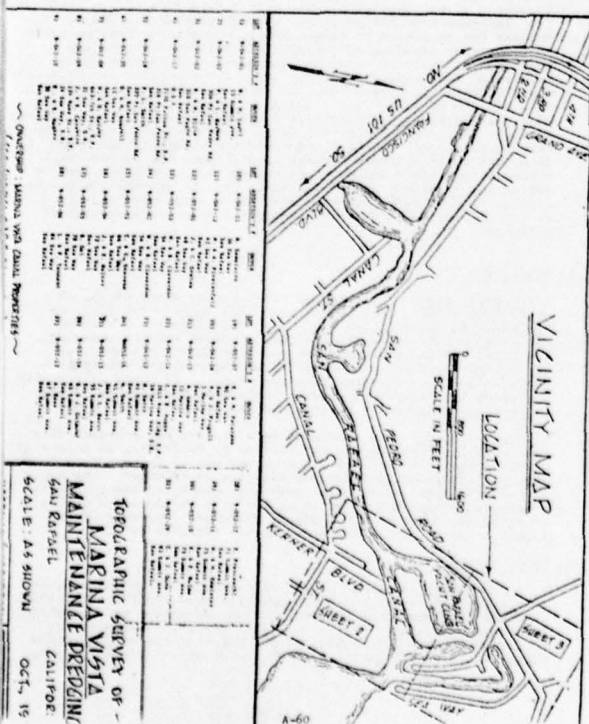
Two checks for permit fees are attached: one to PCDC for \$50.00 and one to the RWQCB for \$100.00.

8. SEDIMENT ANALYSIS

After discussions with the EPA and the RWQCB in which it was determined that (1) the dredging quantity is relatively small; (2) the dredging area is surrounded by a residential area and supports no commercial or industrial activity and (3) it is proposed to place the dredged material on land, both agencies concluded that sediment testing would not be required.



A-59





DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
100 WASHINGTON STREET
SAN FRANCISCO, CALIFORNIA 94102

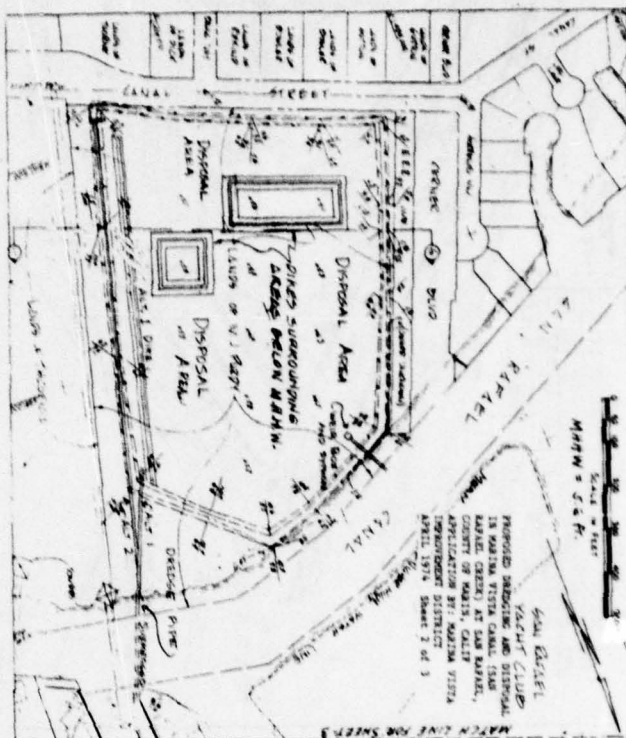
SPNCO-R

27 May 1975

PUBLIC NOTICE NO. 10449-53

TO WHOM IT MAY CONCERN:

1. The Marina Vista Improvement Club, c/o M. H. Cheney, 6630 Heartwood Drive, Oakland, California 94607 (telephone 413-139-0665) has applied for a Department of the Army permit for the maintenance dredging of approximately 8,000 cubic yards of bottom sediment from the Marina Vista Canal, (a tributary of San Rafael Creek) at Summit Avenue and Point San Pedro Road in San Rafael, Marin County, California. The location and details of the proposed work are shown on the three drawings which accompany this notice.
2. The applicant states that the purpose of the dredging is to provide adequate depth in the Canal for recreational boating. Dredging would be over the entire area of the Canal to a depth of six (6) feet below mean lower low water (MLLW), and would be accomplished by hydraulic dredge with the dredged material transported by pipeline to a diked land disposal site of approximately 10 acres on the opposite side of San Rafael Creek. The pipeline would be submerged below the mud line in its crossing of San Rafael Creek. The applicant states that the dredged material would be discharged in the disposal site at one of two possible locations depending on the pumping capability of the selected dredge. In either case an arrangement of internal levees and weirs would be used to provide adequate settlement of solids before discharge of residual water from the dredged material. The discharge of this water would occur from the northeast corner of the disposal site into San Rafael Creek. The waste water discharge would be subject to waste discharge requirements of the California Regional Water Quality Control Board. Sheets 2 and 3 of the drawings show details of the area to be dredged and the disposal site.
3. The disposal site is an area shoreward of an existing dike. Dredged material placed on this site prior to 18 December 1968 has raised the elevation of most of the site to a level above mean higher high water (MHHW). Those parts of the site still below MHHW would be diked off as shown on Sheet 2 so that none of the dredged material would be placed on those areas.
4. The applicant has obtained use permit No. UP 74-88, 19 December 1974, from the City of San Rafael and has applied for a permit from the San Francisco Bay Conservation and Development Commission (BCDC) and for certification from the California Regional Water Quality Control Board.



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DOCUMENT A1

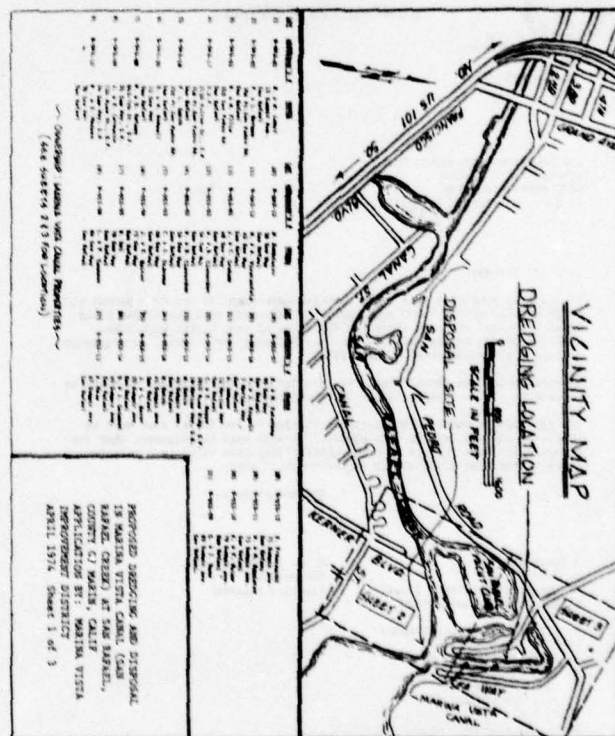
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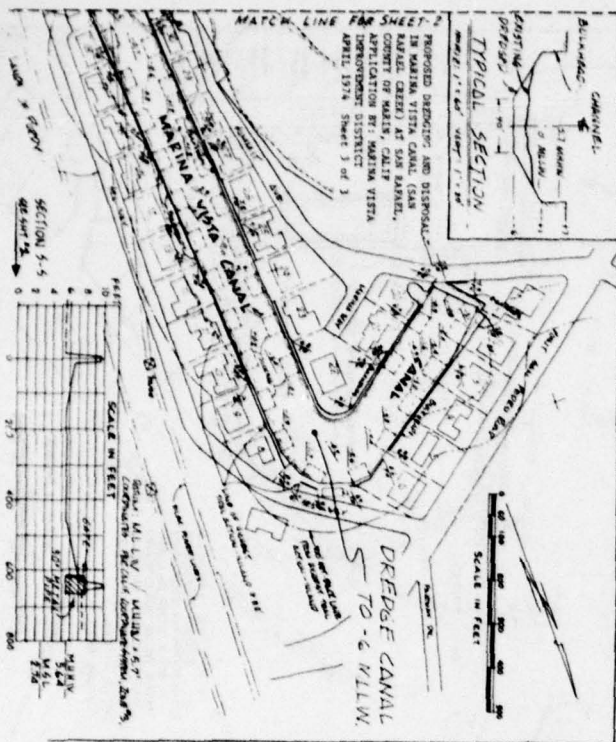
27 May 1975

PUBLIC NOTICE NO. 10449-53

5. In accordance with the requirements of the National Environmental Policy Act of 1969 (PL 91-190), the Corps has evaluated the environmental aspects of the proposed activity and has determined that the activity involves a minor effort of no significant adverse effect on the quality of the human environment. Therefore, at this time it does not appear that the preparation of an Environmental Impact Statement (EIS) by the Corps will be necessary.
6. A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it eliminate the necessity of obtaining State assent to the work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.
7. Interested parties may submit in writing any comments that they may have on the proposed work. Comments should include the number and date of this notice and should be forwarded so as to reach this office within thirty (30) calendar days. It is the Corps' policy to forward any such comments which include objections to the applicant for resolution or rebuttal. If the objecting party so requests, his name will be deleted from the forwarded letter of the objections will be paraphrased in summary form. In such cases, however, it should be noted that the applicant cannot be requested to resolve such objections directly but can only rebut them by responding to the District Engineer. Details of any changes of a minor nature which are made in the final permit action will be provided on request.

H. A. FLEETCHER, JR.
Colonel, CE
District





A-67



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT CORPS OF ENGINEERS
100 MALLISTER STREET
SAN FRANCISCO, CALIFORNIA 94102

REPLY TO
ATTENTION OF
SPNCO-R
PN 10449-53

23 JUL 1978

Marina Vista Improvement Club
c/o Mr. N. N. Cheney
6630 Heartwood Drive
Oakland, California 94607

Dear Mr. Cheney:

Inclosed is your copy of a fully executed Department of the Army permit to hydraulically dredge 8,000 cubic yards of sediments from the Marina Vista Canal with land disposal above the elevation of mean higher high water (MHHW) adjacent to San Rafael Creek, Marin County, California, as requested in your application dated 4 March 1975.

If applicable, the permit should be recorded with the Registrar of Deeds in accordance with condition "i" of the authorization.

The appropriate parts of the inclosed "Notice to Permittee" form must be completed and returned to this office. It will also be necessary that you post the inclosed "Notice of Authorization" (ENR Form 4336) in a conspicuous place at the site prior to the commencement of work.

Sincerely yours,

- 3 Inclosures
1. Permit
2. Notice to Permittee (dupe)
3. Notice of Authorization

Copy furnished (incl 1 only):
US FWS, Portland, OR
US FWS, Sacramento, CA
US FWS, S.F., CA
US FWS, Dixon, CA
US FWS, Yountville, CA
US FWS, S.F., CA
US FWS, Oakland, CA
US FWS, San Rafael, CA

M. A. FLETSCHER, JR.
Colonel, CE
District Engineer

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DOCUMENT A18

Keep Freedom in Your Future With U.S. Savings Bonds



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT CORPS OF ENGINEERS
101 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94102

SPNCO-RN
No. 12371-53

Mr. Ely Caillouette, Jr.
Director of Public Works
City of San Rafael
1400 Fifth Avenue
San Rafael, California 94902

Dear Mr. Caillouette:

This is in response to your letter of 21 July 1978 requesting a determination of Corps of Engineers regulatory jurisdiction over two parcels of land owned by the city of San Rafael, located near San Francisco Bay, adjacent to the San Rafael Canal, within San Rafael city limits, Marin County, California. These parcels are identified on the Marin County Assessor's Map (Inclosure 1) as A.P. 9-032-06 and 9-032-07.

We have now completed our examination of our records and Department of the Army permit 10449-53 issued in 1975, and other substantiating photographic evidence. In addition, several detailed ground inspections of these parcels, which included an elevation survey and wetland survey, have also been completed. We also thank you for the information you have provided our staff with regard to the history of these parcels.

The information that you have submitted and that we have acquired is sufficient to determine administratively that the proposed activity would not involve the discharge of dredged or fill material into a water of the United States (including adjacent wetlands) pursuant to Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1344; 86 Stat. 816) and would be conducted in an area which was filled prior to 18 January 1972 above the elevation reached by mean high water pursuant to Section 10 of the River and Harbor Act of March 1899 (33 U.S.C. 403; 30 Stat. 1151). Therefore, a Department of the Army permit will not be required for the completion of your fill proposal and park.

However, we request that you notify this office when your work is scheduled to start, as it may be interpreted as an unauthorized activity by concerned members of the public. We also ask that you notify us upon completion of your project so as to enable our inspection staff to determine that no work was performed in our jurisdiction without proper authorization.

A-69

DOCUMENT A19

SPNCO-RN
Mr. Ely Caillouette, Jr.

27 JUL 1978

If you have any questions, please call Mr. D. W. Ceresa (telephone 415-556-3426) of our Regulatory Functions Branch. Please address all written correspondence to the District Engineer, and refer to the file number at the head of this letter.

Sincerely yours,

1 Inclosure
As stated

JAMES C. WOLFE
Chief, Construction-
Operations Division

2
A-70



11219-47

POST OFFICE BOX NR 60 SAN RAFAEL, CA 94902 TELEPHONE (415) 457-50

July 22, 1976

Walter S. Boyle, Chief
Regulatory Functions Branch
U. S. Army Corps of Engineers
100 McAllister Street
San Francisco, California 94102

Dear Mr. Boyle:

Enclosed is the permit application for San Rafael's proposed 600 berth Marina. The Marina will provide the first fully adequate public access to San Rafael's waterfront, taking advantage of this natural resource.

Accompanying the application are three (3) copies of the Marina Feasibility Study, dated June, 1976. Figure 3, following page 8 of the Study, shows the proposed development plan. You also may find other sections interesting and informative. For example, pages 34 and 35 comment on sedimentation. Additionally, I am enclosing the Marina Environmental Impact Report.

Please call if you have any questions or if we can provide further amplification or clarification on any point. We look forward to working with you to bring this project to fruition.

Sincerely,

J. Stanley Ott
J. STANLEY OTT
Assistant Executive Director

encl:
JSO/jho

A-71

DOCUMENT A-20

Date activity is proposed to commence: July, 1977

Date activity is expected to be completed: July, 1979

12. Is any portion of the activity for which authorization is sought now complete? Yes ☒ No ☐
If answer is "Yes" give reasons in the remarks section. Month and year the activity was completed: July, 1976. Indicate the existing work on the drawings.

13. List all approvals or certifications required by other Federal, interstate, state or local agencies for any structures, construction, discharges, deposits or other activities described in this application.

Hearing Agency	Type Approval	Identification No.	Date of Application	Date of Approval
See Attached sheet				

14. Has any agency denied approval for the activity described herein or for any activity directly related to the activity described herein? Yes ☐ No ☒ (If "Yes" explain in remarks)

15. Remarks (see paragraph 3 of Permit Pamphlet for additional information required for certain activities)

See Attached sheet

16. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information obtained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

J. Stanley Ott
J. STANLEY OTT
Assistant Executive Director

18 U.S.C. Sec. 1001 (a)(2) Whoever, in any manner which the jurisdiction of any department or agency of the United States extends to, knowingly and willfully makes, or causes to be made, by any trick, scheme, or device, a material fact or matter known to be false, or fraudulently obtains, or attempts to obtain, any money or property of the United States, shall be fined not more than \$10,000 or imprisoned not more than five years, or both.

The application must be signed by the person who desires to undertake the proposed activity; however, the application may be signed by a duly authorized agent if accompanied by a statement by that person designating the agent and agreeing to furnish upon request, supplemental information in support of the application.

If the activity includes the discharge of dredged or fill material in navigable waters or the transportation of dredged material for the purpose of dumping it in ocean waters, the application must be accompanied by a fee of \$100 for quantities exceeding 2500 cubic yards and \$10 for quantities of 2500 cubic yards or less. Federal, State and local governments are excluded from this requirement.

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APPLICATION FOR A DEPARTMENT OF THE ARMY PERMIT

One set of original drawings and two copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and checklist).

See enclosed Marina Feasibility Report

1. Application number (To be assigned by Corps): 11219-47	2. Date: 7 22 76 Day Mo. Yr.	3. For official use only.
4. Name and address of applicant: SAN RAFAEL REDEVELOPMENT AGENCY P.O. Box 60 San Rafael, California 94902 Telephone Number: 415-456-1112, Ext. 241		
5. Name, address, and title of applicant's authorized agent for permit application coordination: LYNN M. SEDWAY, Redevelopment Assistant or J. STANLEY OTT, Assistant Executive Director SAN RAFAEL REDEVELOPMENT AGENCY P.O. Box 60 SAN RAFAEL, CALIFORNIA 94902 Telephone Number: 415-456-1112		
6. Describe the proposed activity, its purpose and intended use, including a description of the type of structures, if any, to be erected on fills, or pile or float supported platforms, and the type, composition and quantity of materials to be discharged or dumped and means of conveyance. Public Marina with slips on floats to berth 600 boats, adjacent to 40,000 sq. ft. of commercial facilities plus parking for the project. Refer to Feasibility Study, dated June, 1976.		
7. Proposed use: Private <input type="checkbox"/> Public <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Other <input type="checkbox"/> (Explain in remarks)		
8. Name and address of adjoining property owners whose property also adjoins the waterway: SAN RAFAEL CAYES, c/o J. MAYERHOFF CORP., SUN LIFE BLDG., CHARLES CNTR. BALTIMORE, MD. 21201 JAMES FISCHGRUND, 9460 WILSHIRE BLVD., BEVERLY HILLS, CA. 90212 STANLEY HERSTEIN c/o D. GOLD, 105 MONTGOMERY ST., SAN FRANCISCO, CA. 94104		
9. Location where proposed activity exists or will occur: Sec. 1' Twp. 1 North Rpt. 6 West, Meridian Mt. Diablo California Marin San Rafael Larkspur State County City or Town		
10. Name of waterway at location of the activity: San Rafael Bay		

FORM 4345 REPLACES ENG FORMS 4345 AND 4345-1 (PART A, MAY 71) AND 4345-1 (PART B, JUN 71, WHICH ARE OBSOLETE)

A-72

(EN 1145-1-30) (EP 1145-1-1)

13. State Clearing House, Certification of Compliance
FD No. 76071285, July 7, 1976, date of application.

State Resources Agency Fish & Game Clearance

State Lands Commission, Sovereign Rights Determination 7/2/76

RCDC - Major Project Permit Application

California Regional Water Quality Control Board
Water Quality Certification

San Rafael Sanitation District - Sewer Permit

Marin Municipal Water District - final arrangements for transference of existing water permits

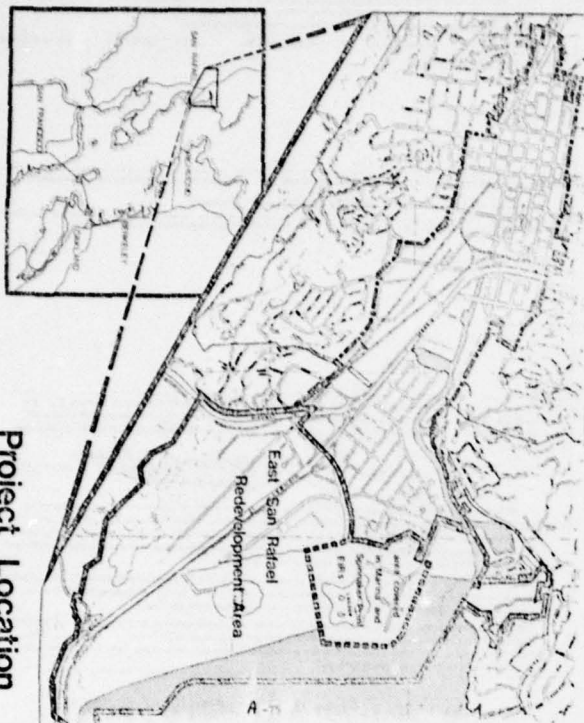
15. Dredging in the Marina project will be "balanced" in that all dredged materials remain on the site to provide parking, levees, etc. The entrance channel, requiring 40,000 cubic yards of dredging, will be dredging bay bottom mud by means of hydraulic cutter-head dredging.

600 slips will consist of floats anchored to piles. Commercial structures and parking will be placed on filled grounds. (Please refer to the feasibility study or details).

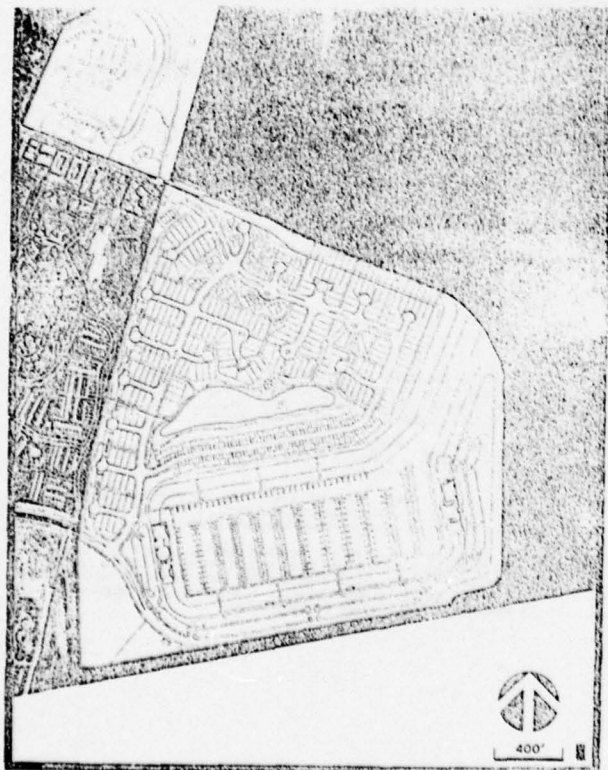
The marina facility will be used by both sail and motor powered boats. There will be a combination fuel dock and holding tank-pump-out station. Sewage goes to the adjacent sewage treatment plant.

The State Lands Commission has determined that such public rights as do exist have been granted by the State Legislature to the City of San Rafael. Accordingly, the State Lands Commission has notified the Redevelopment Agency that it will not be necessary to apply to the State Lands Commission for authorization to develop the proposed Marina.

A-75



Project Location
Figure 1



A-76

Project Plan

Figure 2



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

SPNCO-RN

2 February 1977

PUBLIC NOTICE NO. 11219-47

RESPONSE REQUIRED BY: 2 March 1977

TO WHOM IT MAY CONCERN:

1. The San Rafael Redevelopment Agency, P.O. Box 60, San Rafael, California 94902 has applied for a Department of the Army permit to develop a 600-birth (small craft) marina with shops and restaurants (including filling and dredging) at an existing marsh and lagoon area of Spinnaker Point in the East San Rafael Baylands adjacent to San Francisco Bay, Marin County, California, as shown on the attached two sheets. This application has been submitted pursuant to the provisions of Section 10 of the River and Harbor Act of 1899 (30 Stat 1151; 33 U.S.C. 403) and Section 404 of the Federal Water Pollution Control Act (PL 92-500, 86 Stat. 816, 33 U.S.C. 1344).

2. Excavation of the marina basin (about 500,000 cubic yards) and dredging of the marina entrance channel (about 40,000 cubic yards) would be required. This material, plus an additional quantity of imported dry fill (about 185,000 cubic yards) would be placed on adjacent property including the formation of a levee around the marina. See sheet 2 for location of disposal areas (spoils areas). The public docking facilities would include a fuel dock, ten 400-foot long and one 500-foot long pier structures with berths on both sides, and one 400-foot long and one 1000-foot long pier structure with berths on one side only. Spacing between the slips varies from one-and-one-half to two times the length of the berth. Parking for 500 cars with space available for future expansion would be provided immediately south of the harbor, extending for about a quarter mile between the Marina shops and restaurants which are concentrated at both ends (east and west) of the harbor. To the east of the marina there is proposed an open space recreational area with walkways and benches between the harbor channel and San Francisco Bay. To the west of the Marina project and south of Sellen Boulevard, the City's park property would eventually be developed to include tennis courts and other recreational facilities, although no specific park plan has yet been proposed. The marina would consist of 37 acres of water and 22 acres of land, the shops occupying 10,000 square feet and the restaurants, 18,000 square feet. The marina entrance channel would join the channel leading into San Rafael Creek.



A-77

DOCUMENT A-77



SPNCO-RN

2 February 1977

PUBLIC NOTICE NO. 11219-47

3. The applicant has applied for the following additional authorization:

- San Francisco Bay Conservation and Development Commission, (BCDC) permit.
- California Regional Water Quality Control Board (San Francisco Bay Region) certification.
- San Rafael Sanitation District - sewer permit.
- Marin Municipal Water District - permit.

4. In accordance with the requirements of the National Environmental Policy Act of 1969 (Public Law 91-190), the Corps of Engineers has made a preliminary assessment of the environmental, engineering, economic, and social aspects of the proposed activity. The disposal site is in the East San Rafael area for which several Corps permit actions are pending. It has been determined that the cumulative effect of these proposals would have considerable impact on the human environment and the Corps will prepare an Environmental Impact Statement (EIS) covering the area concerned. These aspects will be discussed in detail in EIS. Requests for copies of the draft EIS should be submitted in writing and directed to the attention of the Environmental Branch of this office, at the address given above. The proposed activity does not involve property listed in the National Register of Historic Places.

5. A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it eliminate the necessity of obtaining State consent to work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among these are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.

A-78

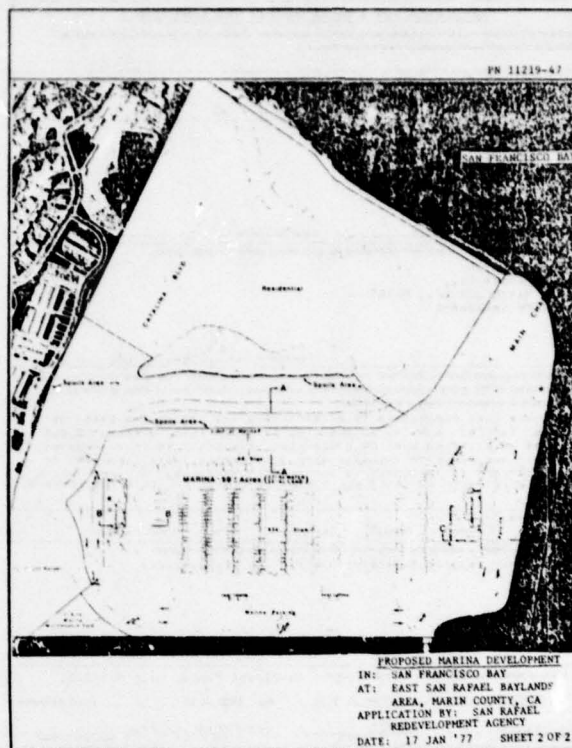
SPNCO-KN
PUBLIC NOTICE NO. 11219-47

2 February 1977

6. Evaluation of this activity's impact on the public interest will also include application of the guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b), of the Federal Water Pollution Control Act of 1972, 33 U.S.C. Section 1344(b), and (if applicable) Section 102(a) of the Marine Protection, Research, and Sanctuaries Act of 1972, 33 U.S.C. Section 1412(a). Any person who has an interest which may be adversely affected by the issuance of a Corps of Engineers permit may request a public hearing. The request must be submitted in writing to the District Engineer within thirty (30) days of the date of this notice and must clearly set forth the interest which may be adversely affected and the manner in which the interest may be adversely affected by the activity. This paragraph concerning guidelines and public hearings applies only to activities involving the discharge of dredged or fill materials in the navigable waters or the transportation of dredged materials for the purpose of dumping it in ocean waters.

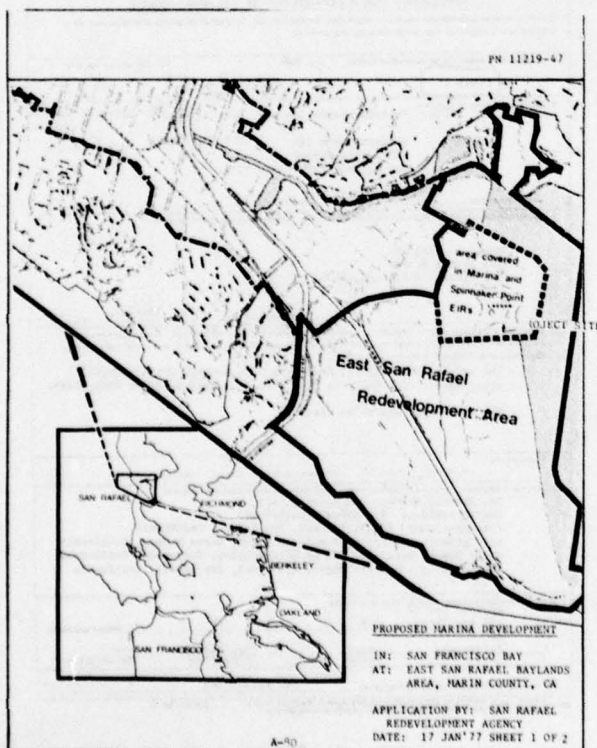
7. Interested parties may submit in writing any comments that they may have on the proposed work. Comments should include the number and date of this notice and should be forwarded so as to reach this office within thirty (30) calendar days. It is the Corps' policy to forward any such comments which include objections to the applicant for resolution or rebuttal. Details on any changes of a minor nature which are made in the final permit action will be provided on request.

R. A. FLERTZHEIM, JR.
Colonel, CE
District Engineer



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A-80



11219-47

400 FIFTH AVE. SAN RAFAEL, CALIF. 94901/PHONE (415) 486-7112

DATE: September 22, 1978

Col. John M. Adait, District Engineer
Department of the Army
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, California 94105

Attn: Mr. Dennis W. Cereso, Project Manager

Re: East San Rafael Baylands - Marina

Dear Col. Adait:

This is to notify you of a modification to the June 27, 1977 Urban Design and Development Policy Statement for East San Rafael. That plan included the concept of a 600 berth marina to be developed by the City with money advanced by the State through the Department of Navigation and Ocean Development (Sec. A4 on page 4; D6 on page 7). Please delete that from the plan.

Several years ago when this plan was developed and initially explained to the Corps, we anticipated the completion of an EIS by the fall of 1977 and construction permits shortly thereafter. The EIS has not yet cleared your office and this additional delay, in conjunction with inflation, has raised the cost of this project beyond what the City can afford. Therefore, the City Council has determined not to renew the option on this land when it expires this October. Hence, the land will remain in its present ownership.

The General Plan for the City of San Rafael indicates this area as having a land use potential for either "residential" or "open space".

Sincerely,

WILLIAM J. RIELER
City Manager

WJR/m
cc: Herbert G. Hotzler

A-82

DOCUMENT A22

11. Date activity is proposed to commence As soon as possible
 Date activity is expected to be completed We are estimating 2 - 5 years

12. Is any portion of the activity for which authorization is sought now completed? Yes ☐ No ☒ XXXX
 If answer is "Yes" give reasons in the remarks section. Month and year the activity was completed. Indicate the existing work on the drawing.

13. List all approvals or certifications required by other Federal, interstate, state or local agencies for any structures, construction, discharges, deposits or other activities described in this application.
 Issuing Agency Type Approval Identification No. Date of Application Date of Approval
 City of San Rafael Rubbish Dump Permit # 37 Yearly (Last permit approved Aug. 31, 1976 for one year to Aug. 31, 1977)

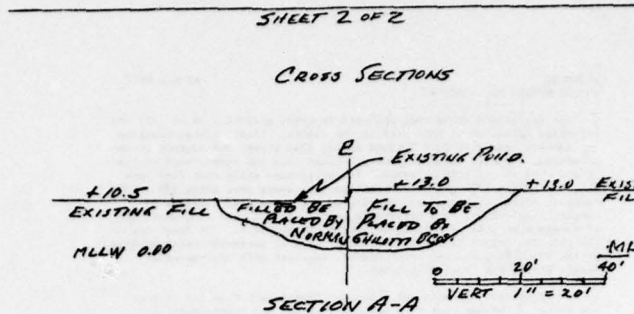
14. Has any agency denied approval for the activity described herein or for any activity directly related to the activity described herein? Yes ☐ No ☒ XXXX "Yes" explain in remarks.

15. Remarks (see paragraph 3 of Permit Pamphlet for additional information required for certain activities).
 See letter attached

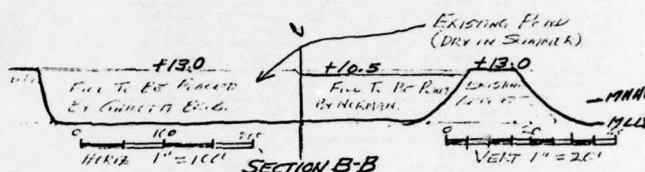
16. Application is hereby made by the undersigned, in any manner within the jurisdiction of any department or agency of the United States knowing and with full knowledge, and that to the best of my knowledge and belief such information is true, complete, and correct. I certify that I possess the authority to undertake the proposed activities.
 Signature of Applicant Mario M. Ghilotti
 Mario M. Ghilotti
 18 U.S.C. Section 1001 provides that whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and with full knowledge, and that to the best of my knowledge and belief such information is true, complete, and correct. I certify that I possess the authority to undertake the proposed activities. The application must be signed by the person who desires to undertake the proposed activity; however, the application may be signed by a duly authorized agent if accompanied by a statement by that person designating the agent and agreeing to furnish upon request, supplemental information in support of the application. If the activity includes the discharge of dredged or fill material in navigable waters or the transportation of dredged material for the purpose of dumping it in ocean waters, the application must be accompanied by a fee of \$100 for quantities exceeding 2500 cubic yards and \$10 for quantities of 2500 cubic yards or less. Federal, State and local governments are excluded from this requirement.



B-2
A-57

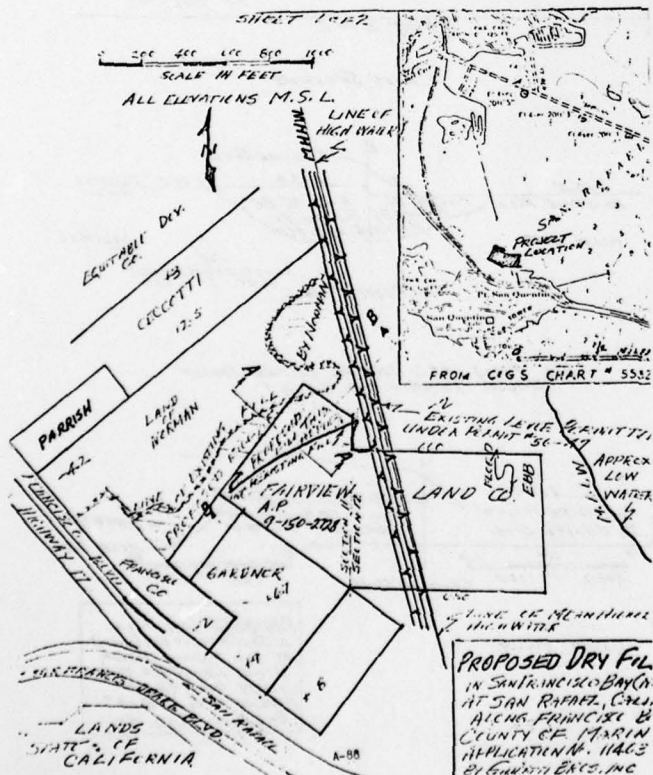


ALL FILLS ARE INSIDE LEVEE BUILT UNDER PERMIT NO. 56-47



DATUM = MLLW

PROPOSED DRY FILL
 IN SAN FRANCISCO BAY (cont.)
 AT SAN RAFAEL, CALIF.
 ALONG FRANCISCO ISLAND
 COUNTY OF MARIN
 APPLICATION NO. 11403-47
 BY GHILOTTI BROS., INC.



DEPARTMENT OF THE ARMY
 SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
 211 MAIN STREET
 SAN FRANCISCO, CALIFORNIA 94105

SPNCO-RN

27 May 1977

PUBLIC NOTICE NO. 11403-47

RESPONSE REQUIRED BY 26 June 1977

TO WHOM IT MAY CONCERN:

1. Ghilotti Brothers, Inc., 525 Jacoby Street, San Rafael, California 94900, as lessee, and Fairview Lands, Inc. as legal owner, have applied for a Department of the Army permit to authorize the retention of approximately 3,000 cubic yards of dry fill material, approximately 15 linear feet of concrete rubble riprap placed along a levee, and the proposed placement of approximately 40,000 cubic yards of additional fill material on four acres of partially filled former submerged lands and tideflats of San Francisco Bay. The existing and proposed fill site is in San Rafael, shoreward of an existing levee (authorized by Department of the Army Permit 7375-47 (PN 56-47)) adjacent to San Rafael Bay, a part of San Francisco Bay, Marin County, California. This application has been submitted pursuant to the provisions of Section 10 of the River and Harbor Act of 1899 (30 Stat. 1151; 33 U.S.C. 403) and Section 404 of the Federal Water Pollution Control Act (PL 92-500, 86 Stat. 816, 33 U.S.C. 1344).

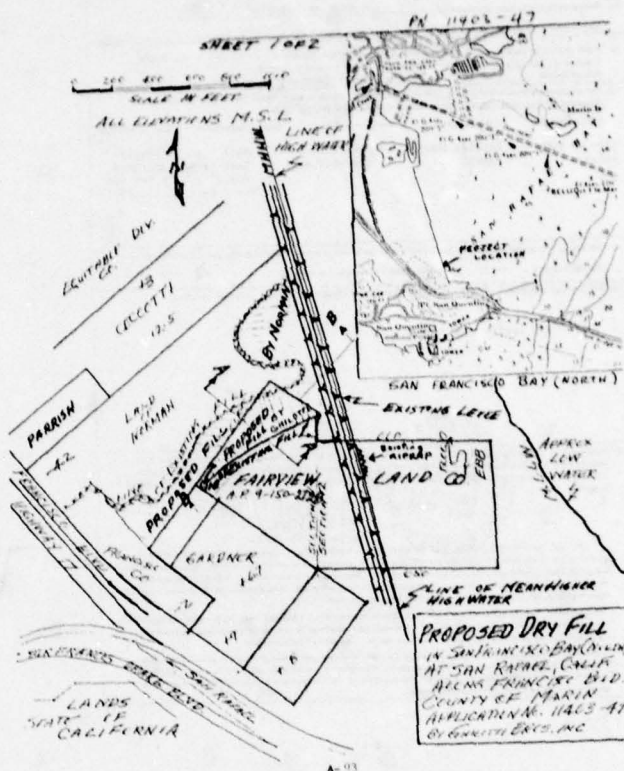
2. The levee was completed 31 August 1958 and served to provide additional protection for the San Rafael Sanitation District's outfall sewer line. Since that time most of the project area (as well as other adjacent parcels) have received varying amounts of fill. Dr. Haskell Norman owns a 26-acre parcel of land adjoining Ghilotti's parcel on the north side. Dr. Norman has applied for a Department of the Army permit to place approximately 100,000 cubic yards of dry fill on a 9-acre portion of his land and also fill his side of a pond he shares with Ghilotti. This proposal is described in our Public Notice 9441-47 issued 18 January 1977, and is included in our Draft Environmental Statement (published February 1977) for East San Rafael Baylands Development. The ponding areas were created in 1969 when both the applicant and Dr. Haskell Norman joined the East San Rafael Drainage Assessment District. The drainage system was to consist of a 400-foot wide open channel to the bay, and ponds that would serve as storm water runoff holding areas during the winter rainy season. These two ponding areas are no longer required for this purpose because of the completion of a storm water runoff system by the City Water District of San Rafael. Thus, Ghilotti Brothers and Dr. Norman propose to fill these ponds and surrounding area so that the site can be used for future development. There is considerable vegetation (including some pickleweed and saltgrass) around the ponds and many species of birdlife have been observed in the area.

A-30

DOCUMENT A-36

5. The applicant has obtained a Rubbish Dump Permit from the city of San Rafael. The San Francisco Bay Conservation and Development Commission (BCDC) has "shoreline" band jurisdiction over a 100-foot wide band of land from the line of highest tidal mark to the shoreline. The Commission has issued a permit for the proposed fill, but the permit is for fill unrelated to the proposed development within the shoreline band, unless it is for the purpose of maintaining existing levees. However, in the past the Commission has permitted fill and development at the shoreline band when the project provides maximum feasible public access to the Bay and shore.

6. A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges, and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it eliminate the necessity of obtaining State assent to work authorized. The decision by the Corps of



A-31

A = 0.75

P_N 11403 = 47

SHEET 2 OF 2

Cross Sections

22 MAY 1977

Hand-drawn cross-section diagram of a river channel. The diagram shows a central channel with a vertical centerline labeled 'P'. To the left of the centerline, the existing fill is at +10.5 and the proposed fill is at +13.0. To the right, the existing fill is at +13.0 and the proposed fill is at +15.0. The channel is labeled 'FILL TO BE RAISED BY NADRA' and 'FILL TO BE RAISED BY GOVT. DEP.'. The channel width is indicated as 20' and 40'. The channel is labeled 'VERT' and 'H = 20''. The channel is labeled 'SECTION A-A'.

ALL FILLS ARE INSIDE LEVEE BUILT
UNDER PERMIT NO. 56-47

EXISTING FLOW

+13.0
FILL TO BE ROLLED
BY GUNNETH BRO.

+10.5
FILL TO BE ROLLED
BY NURNAN

+13.0
EXISTING
LEVEL

10' 20'

VERT 1" = 20'

HORIZ 1" = 10'

SECTION B-B

PROPOSED DRY KILL
IN SAN FRANCISCO BAY (NORTH)
AT SAN RAFAEL, CALIF.
ALONG FRANCISCO BLVD.
COUNTY OF MARIN
APPLICATION No. 1483-47
By CHILLETTE BROS., INC.

Agg

40

The drawing consists of three main parts: two cross-sections at the top and a plan view at the bottom.

- Cross-Section B-B:** A profile view showing a dashed ground line and a solid fill line. Elevation points are marked as +1.0, +2.1, and -1.4. The horizontal scale is 1" = 20'.
- Cross-Section A-A:** A profile view showing a dashed ground line and a solid fill line. Elevation points are marked as +0.2, +1.1, and -1.4. The horizontal scale is 1" = 200'.
- Plan View:** A top-down view of the site.
 - Boundaries:** "BOUNDARY TO HIGHWAY" (top), "EXIST. EXHAUST DRAIN" (left), "HERZTEIN PROPERTY LINE" (right), and "FRANCISCO BLVD" (bottom).
 - Land Ownership:** "LANDS OF CALTEX INC." (top center), "LANDS OF CECILOTTI ET AL" (right), and "LANDS OF ISATIDE ASSOCIATES" (bottom right).
 - Proposed Features:** "KERNER BLVD EXTENSION" (dashed line), "LANDFILL AREA (APPROX. 2.6 FT.)" (dashed rectangle), and "EXTENT OF FILL" (dashed area).
 - Other Labels:** "PROPOSED", "ADJACENT WETLANDS (LANDS OF HERZTEIN)", "EXISTING DRY FILL", "SAN FILL", "EXISTING AIRFREIGHT CO.", "SAN RAFAEL MARIN COUNTY CALIF. 6/25/73", "ASCESSION, HANCOCK P-000-27".
 - Scale and Orientation:** "SCALE: 1" = 200' (bottom), "N" (North arrow pointing up and slightly right).



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
311 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

SPNCO-RN

20 October 1978

PUBLIC NOTICE NUMBER 12255-47

RESPONSE REQUIRED BY: 19 November 1978

TO WHOM IT MAY CONCERN:

1. Mr. Stanley Herzstein, Class Action Trustee for Holiday Magic Property, 120 Montgomery Street, Room 650, San Francisco, California 94104 (telephone 415-981-2460) has applied for a Department of the Army (DA) permit to authorize the retention of approximately 54,000 cubic yards of dry earth fill material placed by unknown parties on a 1.7 acre portion of Holiday Magic land. This 1.7 acre portion of filled former submerged lands of San Francisco Bay is part of a 8.67 acre parcel situated on the shoreline, San Francisco, California. Approximately 4.8 acres are existing wetlands which would not be affected by this proposal. The remaining 1.1 acre is not within Corps Jurisdiction. The site is shoreward of an existing levee (authorized by DA Permit 7375-47) adjacent to San Rafael Bay, a part of San Francisco Bay, Marin County, California. The site is designated as Area 9 on the Corps of Engineers Regulatory Jurisdiction Map dated 4 April 1978 prepared for the area being situated in the Corps EIS for East San Rafael Baylands. This application is submitted pursuant to provisions of Section 10 of the River and Harbor Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344).

2. The levee was completed 31 August 1958 and served to provide additional protection for the San Rafael Sanitation District's outfall sewer line. Since that time, much of the 1.7 acre area has received varying amounts of fill from submitted sources. The applicant did not authorize the placement of fill material on his property and has taken steps to insure that no further fill is placed.

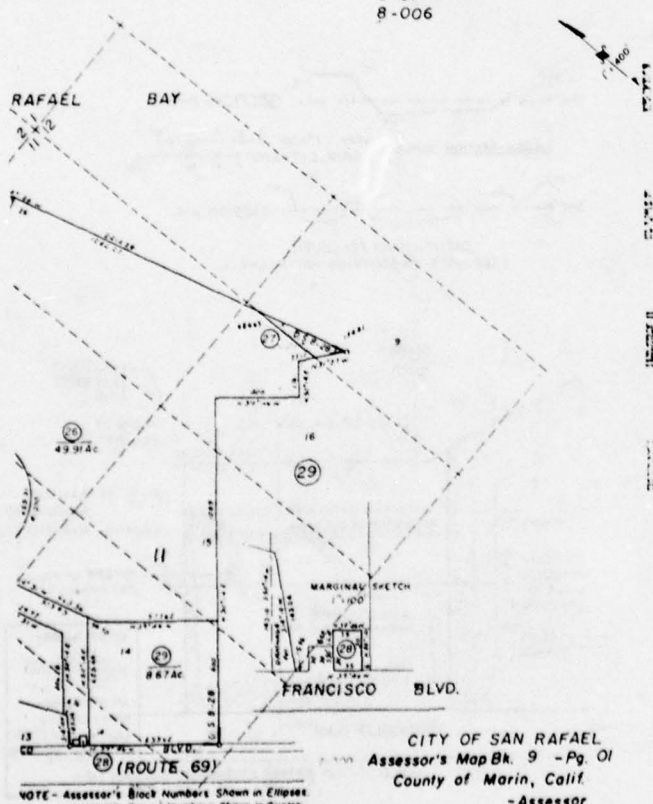
3. The San Francisco Bay Conservation and Development Commission (BCDCC) has "shoreline" band jurisdiction over a 100-foot wide band inland from the line of highest tidal action at the levee. Therefore, the applicant's property is not within BCDCC Jurisdiction.

4. In accordance with the requirements of the National Environmental Policy Act of 1969 (Public Law 91-190), the Corps of Engineers has made a preliminary assessment of the environmental, engineering, economic, and social aspects of the proposed activity, and determined that the project area is within the San Rafael Redevelopment Agency's planning area, and the area covered by the Corps' East San Rafael Baylands Developmental Impact Statement (EIS). It was therefore determined that this project should be evaluated based on the East San Rafael Baylands EIS. Requests for copies of the draft EIS should be submitted in writing and directed to the attention of the Environmental

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DOCUMENT A28

8-017
8-006



SPNCO-RN

PUBLIC NOTICE NUMBER 12255-47

Branch of this office, at the address given above. The proposed activity does not involve property listed in the National Register of Historic Places.

5. A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it eliminate the necessity of obtaining State assent to work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the proposed project and the suitability of the project interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood control, prevention, land use, navigation, recreation, water supply, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

6. Evaluation of this activity's impact on the public interest will also include application of the guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b) of the Clean Water Act of 1972, 33 U.S.C. Section 1344, and (if applicable) Section 102(a) of the Marine Protection, Research and Sanctuaries Act of 1972, 33 U.S.C. Section 1412(a). Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reason for holding a public hearing.

7. Interested parties may submit in writing any comments that they may have on this activity. Comments should include the number and date of this notice and should be forwarded so as to reach this office during the commenting period. Comments should be sent to Colonel John M. Adair, District Engineer. It is the Corps policy to forward any such comments which include objections to the applicant for resolution or rebuttal. Details on any changes of a minor nature which are made in the final permit action will be provided on request.

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DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
311 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94108

SPNCO-RN

26 OCTOBER 1978

PUBLIC NOTICE NO. 12444-47

RESPONSE REQUIRED BY: 25 NOVEMBER 1978

TO WHOM IT MAY CONCERN:

1. Mr. Forrest R. Morphev and Samuel Gardiner, 1851 Francisco Blvd., P. O. Box 2276, San Rafael, California 94902 has applied for a Department of the Army (DA) permit to authorize the retention of existing and placement of additional dry earth fill material on four parcels of partially filled former submerged lands and tidelands of San Francisco Bay. The existing and proposed fill site is in San Rafael, near San Rafael Bay, a part of San Francisco Bay, Marin County, California. Portions of the applicant's property were first filled in 1947, after DA permit No. 6591-53 was issued authorizing the construction of a now abandoned levee. A second currently serviceable levee (authorized by DA permit 7374-47) was constructed in 1958. This application has been submitted pursuant to the provisions of Section 10 of the River and Harbor Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344).

2. On 30 August 1973, Public Notice No. 74-0-25 (copy attached) was issued by the San Francisco District Corps of Engineers describing a fill project proposed by Samuel W. Gardiner. Mr. Gardiner's proposal involved two parcels covering a total of 7.9 acres. Since 1973, Mr. Gardiner subdivided these two parcels into eight parcels and sold portions of this property to various individuals, including Mr. Forrest R. Morphev. In April of 1978, the San Francisco District Corps of Engineers completed a study of this area and issued a map of Corps Regulatory Jurisdiction in the East San Rafael Baylands. The Corps determined that only 2.71 acres out of Mr. Gardiner's original 7.9 acres were actually subject to Corps Jurisdiction under Section 10 of the River and Harbor Act of 1899 and/or Section 404 of the Clean Water Act of 1977. The approximate boundaries of these areas of the original Gardiner fill project described in PN 74-0-25, which are still subject to Corps Regulatory Jurisdiction, are shown on the attached drawing (Areas 1, 3A(1), 3A(2) and 3A(3)). Areas 1, 3A(1) and 3A(2) were filled prior to Mr. Morphev's purchase of this land. Mr. Morphev purchased additional fill and areas 3, 3A(1) and 3A(2) are now used for parking, industrial storage and an office trailer. Area 3A(3) is seasonally flooded by rain and is considered an existing wetland. Portions of 3A(3) have been subject to indiscriminate dumping of garbage and debris by unknown persons. Mr. Morphev's proposal is similar to Mr. Gardiner's original proposal as outlined in PN 74-0-25. Mr. Morphev proposes to fill all four areas within Corps Jurisdiction to an elevation of approximately 12 feet above mean lower low water (MLLW). Approximately 30,000 additional cubic yards of dry earth fill material would be placed in these areas and the land would be developed with light industrial or commercial purposes compatible with the city of San Rafael Urban Design and Development Plan.

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DOCUMENT A30

3
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SPNCO-RN

PUBLIC NOTICE NO. 12444-47

3. A San Francisco Bay Conservation and Development Commission (BCDC) permit is not required for this proposal.

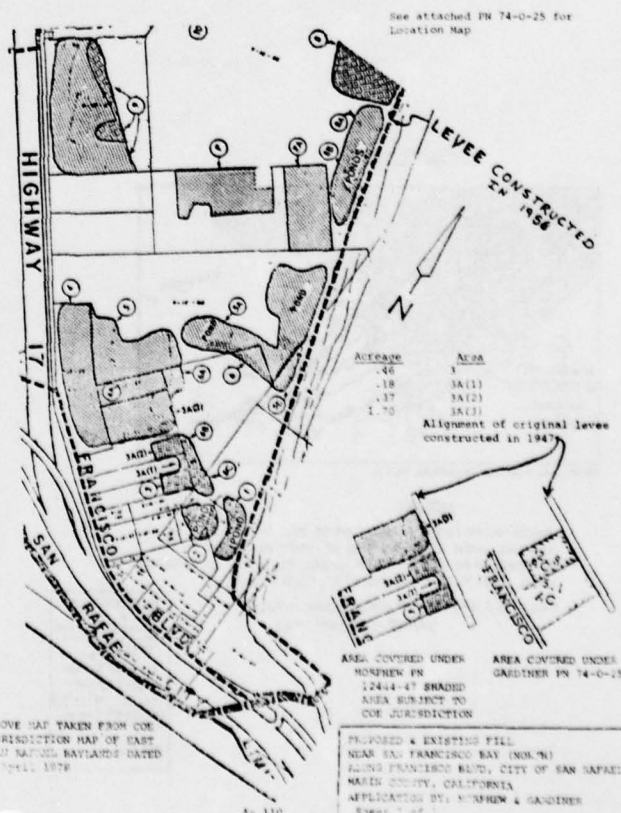
4. In accordance with the requirements of the National Environmental Policy Act of 1969 (Public Law 91-190), the Corps of Engineers has made a preliminary assessment of the environmental, engineering, economic, and social aspects of the proposed activity and determined that the project area is within the San Rafael Redevelopment Agency's planning area, and the area covered by the Corps' East San Rafael Baylands Development Environmental Impact Statement (EIS). It was therefore determined that this project should be evaluated based on the East San Rafael Baylands EIS. Requests for copies of the draft EIS should be submitted in writing and directed to the attention of the Environmental Branch of this office, at the address given above. The proposed activity does not involve property listed in the National Register of Historic Places.

5. A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it eliminate the necessity of obtaining State assent to work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact of the activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among these are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use, navigation, recreation, water supply, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

6. Evaluation of this activity's impact on the public interest will also include application of the guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b) of the Clean Water Act of 1977, 33 U.S.C. Section 1344, and (if applicable) Section 102(a) of the Marine Protection, Research, and Sanctuaries Act of 1972, 33 U.S.C. Section 1412(a). Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reason for holding a public hearing.

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U. S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
100 McALLISTER STREET
SAN FRANCISCO, CALIFORNIA 94102

PUBLIC NOTICE NO. 74-0-25

TO WHOM IT MAY CONCERN:

30 August 1973

Samuel W. Gardiner, Law Offices of Bagley, Bianchi and Sheeks, 1010 B Street, San Rafael, California 94901, has applied for a Department of the Army permit for an existing fill on 5.1 acres of property and to place fill material on 2.8 acres of property shoreward of an existing dike in San Francisco Bay, near Pt. San Quentin, Marin County, California.

The project area is shoreward of a dike which was permitted and constructed under Department of the Army Permit No. 56-47, issued on 28 March 1956. After the completion of the dike, substantial filling occurred in the area without the requirement of a permit. However, due to a recent change in Corps of Engineers policy and regulations, a permit is required for filling in former tidelands which are shoreward of levees and dikes and below the elevation of mean higher high water.

In 1972, 5.1 acres were filled with approximately 57,000 cubic yards of material, consisting primarily of imported earth. The filling was accomplished subsequent to the change in Corps of Engineers policy requiring permits, and reportedly was done without the applicant's knowledge of the change. The ground elevation prior to filling was 3 feet below mean higher high water (2.7 feet above mean lower low water). The existing elevation is 4 feet above mean higher high water (9.7 feet above mean lower low water).

The applicant proposes to fill an additional 2.8 acres of property with approximately 31,000 cubic yards of material consisting of earth and broken rock. The fill would be compacted and placed under the supervision of a soils engineer. The present and proposed elevations of the ground are as described above for the 5.1 acres. This work would not completely fill the area the applicant owns and the applicant has no immediate plans for any buildings or other structures on the filled area.

A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringements of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining State assent to the work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact

A-111

of the proposed activity on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among these are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.

At this time it does not appear that the proposed activity will require the preparation of an Environmental Impact Statement by the Corps of Engineers.

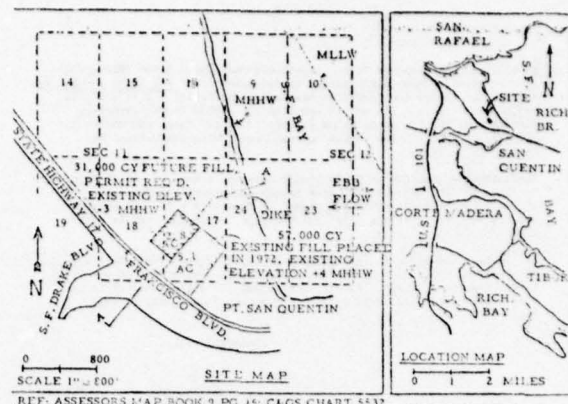
Any person who has an interest which may be adversely affected by the issuance of a Corps of Engineers permit for the work described in this notice may request a public hearing. The request must be submitted in writing to the District Engineer within thirty (30) days of date of this notice and must set forth the interest which may be adversely affected by the activity.

Interested parties may also submit in writing any objections that they may have to the proposed work. Objections should be forwarded so as to reach this office not later than thirty (30) days from date of this notice.

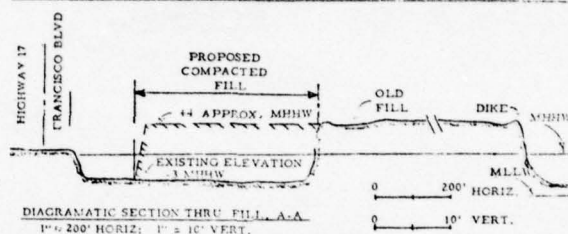
J. L. LAMMIE
Colonel, CE
District Engineer

2

A-112



REF. ASSESSORS MAP BOOK 2 PG. 15; CAGS CHART 5132



NOTE: All proposed fill areas is landward of existing dikes and other filled areas, and lies within previous permit issued to San Francisco Bay Development Company, 12/8/56.

PROPOSED FILL
In/Adjacent to: San Francisco Bay
At: San Rafael, Marin Co., Calif.
Application by: Samuel W. Gardiner
Date: 29 March 1973
Revised: 24 May 1973

A-113



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
210 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94102

SPRUCO-RT/RS
No. 10258-47

San Rafael Caves, Inc.
1060 Oak Grove Road
Concord, California 94518

9 MAY 1974

Gentlemen:

This is in further reference to your proposals for maintenance and reconstruction of levees (as shown on Coleman, Selat & Wright Drawing D-1335.1 dated 1 November 1977) at Spinnaker Point, adjacent to San Francisco Bay, within San Rafael city limits, Marin County, California.

The purpose of this letter is to inform you of recent modifications and refinements in our determination of Corps of Engineers regulatory jurisdiction over specific land parcels at Spinnaker Point owned by J. Meyerhoff Company. This letter clarifies Corps of Engineers regulatory jurisdictional determinations set forth in our letters of 7 October 1977, 22 November 1977 and 3 February 1978 as they specifically apply to Parcels 9 - 10 - 01, 04, 05, and Parcels 9 - 01 - 17, 18, 19, 20 and 21 as indicated on Marin County Assessor's Map (Inclosure 1-two maps).

We have now completed our examination of the documentation submitted by Coleman, Selat & Wright together with our records and Corps LOP 6649-53 and Permit 6650-53 issued in 1963, other substantiating photographic evidence, documents submitted by the U.S. Fish and Wildlife Service, and the "As-Built" Drawing C-523.6 and C-523.9" dated 12 April 1965 of the Spinnaker area submitted by Coleman, Selat & Wright. In addition, several detailed ground inspections of this area, which included an elevation survey and wetland survey, have also been completed.

Based upon the above information and documentation, we have determined administratively that your proposed levee maintenance, fill and other construction activities on lands designated on Marin County Assessor's Maps as Parcels 9 - 10 - 01, 04, 05, and Parcels 9 - 01 - 17 and 20, would not involve the discharge of dredged or fill material into a water of the United States (including adjacent wetlands) pursuant to Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1344; 86 Stat. 816), and would be conducted in an area which was filled prior to 13 January 1972 above the elevation reached by the mean of the higher high waters pursuant to Section 10 of the River and Harbor Act of March 1899 (33 U.S.C. 403; 30 Stat. 1151).

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DOCUMENT A31

SP000-EP/PS
San Rafael Cayes, Inc.

In addition, as shown on Corps Jurisdiction map dated 2 May 1978 (Inclosure 2) marked "Corps Jurisdiction in Sanmaker Area" all areas not shaded (within the levee) designated on Assessor's Map Parcel 9 - 01 - 19, 11 and Parcel 8 - 14 - 20, and 13 are also not within Corps regulatory jurisdiction for the purposes of Section 10 of the River and Harbor Act of 1899, and Section 404 of the Federal Water Pollution Control Act Amendments of 1972.

Those areas designated on Marin County Assessor's Map as all of Parcel 9 - 01 - 15 (the lagoon) and parts (which are shaded) of Parcel 9 - 01 - 19, 21 and parts which are shaded of Parcel 8 - 14 - 20 and 13 require Department of the Army authorization before work can be undertaken.

If you have any questions please call Mr. D. W. Corson (telephone 415-550-5428) or Mr. Blaine A. Delvaux (telephone 415-550-5428) of our Regulatory Functions Branch. Please address all written correspondence to the District Engineer and refer to the file number at the head of this letter.

Sincerely yours,

2 Inclosures
A-115

JAMES C. WOLFE
Chief, Construction-
Operations Division

SP000-EP/PS
Mr. Robert Valentine

If you have any questions, please call Mr. Blaine A. Delvaux (telephone 415-550-5428) or Mr. D. W. Corson (telephone 415-550-5428) of our Regulatory Functions Branch. Please address all written correspondence to the District Engineer, and refer to the file number at the head of this letter.

Sincerely yours,

JAMES C. WOLFE
Chief, Construction-
Operations Division

1 Inclosure

A-115

A-117



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

SP000-EP/PS
NO. 12111-42

Mr. Robert Valentine
55 Bellevue Avenue
Belvedere, California 94020

Dear Mr. Valentine:

This is in response to letters dated 19 December 1977 and 13 January 1978 (Inclosures 1 and 2) from Mr. Ely Calloutis, Jr. of the City of San Rafael, requesting a determination of Corps of Engineers regulatory jurisdiction over a parcel of land owned by you, located near San Francisco Bay, in the East San Rafael Islands, within the city limits of San Rafael, Marin County, California. This parcel is identified on the Marin County Assessor's Map as A.P. 9-23-00.

We have reviewed the topographic survey dated 30 August 1977 prepared by Lawrence A. Fries together with maps filed and earlier permits issued by the City of San Rafael, and other substantiated photographic evidence contained in our files. Personnel from this office conducted on-site inspection on 21 December 1977 and 26 January 1978.

The information that you have submitted and that we have required is sufficient to determine administratively that the proposed activity would not involve the discharge of dredged or fill material into a water of the United States (including adjacent wetlands) pursuant to Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (16 U.S.C. 1344; 36 Stat. 584) and would be conducted above the former shoreline reached by the mean of the higher high waters pursuant to Section 10 of the River and Harbor Act of March 1899 (16 U.S.C. 1131; 36 Stat. 1133). Therefore, at the present time, a Department of the Army permit will not be required for the work as shown on your site plan (Inclosure 3).

However, we request that you notify this office when your work is scheduled to start, so it may be interpreted as an unauthorized activity by concerned members of the public. We also ask that you notify us upon completion of your project so as to enable our inspection staff to determine that no work was performed in our jurisdiction without proper authorization.

A-116

DOCUMENT A-17



14 APR 1978

MARIN MUNICIPAL WATER DISTRICT

June 17, 1977
File 090.5

Mr. Blaine Delvaux
Regulatory Functions Branch
U. S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Re: Wildlife Ponds near San Francisco Bay
Along Dikes, East San Rafael

Dear Mr. Delvaux:

Marin Municipal Water District will dedicate the eastern most 2.5 acres of our San Quentin Pipe Yard in East San Rafael in response to the City's plan to develop a waterfront park. Part of this property borders an existing saltwater pond.

Because we believe this site has potential as a wildlife habitat, we support your efforts in cleaning the ponds of recent fill, providing flushing for them from the bay, and visually rehabilitating the levees.

If we can be of any assistance to you, please contact Jo Duthie, our Environmental Services Coordinator.

Sincerely,

J. Dietrich Stroch
General Manager

JD:ho

cc: City of San Rafael

A-118

DOCUMENT A33

HOFFMAN & ALBRITTON

CIVIL AND STRUCTURAL ENGINEERS

January 25, 1979

ROY H. HOFFMAN
CIVIL AND STRUCTURAL ENGINEER
BEN C. ALBRITTON
CIVIL AND STRUCTURAL ENGINEER
JOHN L. BALEY
CIVIL ENGINEER

35 MITCHELL DRIVE
SAN RAFAEL, CALIFORNIA 94901
(415) 478-438

File 3193
Corps Permit Application
9344.47 A.P. 9-01-26

Department of the Army
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, California 94105

Attention: Mr. Dennis W. Ceresse

Dear Mr. Ceresse:

As requested in our recent telephone discussion, I have calculated the amount of fill now anticipated to be placed on the area considered under Corps of Engineers jurisdiction which is owned by Cal-Pox, Inc. in East San Rafael. The specific area considered under such jurisdiction is that 6.61 acre parcel designated as Area 8 on C. of E. Dwg. titled "Corps of Engineers Regulatory Jurisdiction In Area Being Evaluated In C. of E. E.I.S. For East San Rafael Fill Baylands Area", Revision 2, dated 14 September 1978.

Based on present development plans, it is our estimate that approximately 300,000 cubic yards of material will be required to fill the above described area.

If we can furnish any additional information to assist in your evaluation of the proposed development, please feel free to call.

Very truly yours,

HOFFMAN & ALBRITTON

By Ben C. Albritton
Ben C. Albritton

BCA:el

cc: Martin Bramante
Bruce Bernard

APPENDIX B

ENVIRONMENTAL IMPACT REPORT

WILLIAMS, PLATZKE & MOCINE / CITY & REGIONAL PLANNING
 231 CALIFORNIA STREET SAUSALITO CALIFORNIA 94065 TELEPHONE 415 352-2892
 STONEY H. WILLIAMS, A.P. RUDOLPH R. PLATZKE, A.P. CORWIN E. MOCINE, A.P.

UPDATE

Since the issuance of the Draft EIR, the San Rafael Redevelopment Agency has modified the Plan in response to the input received. The net effect is to eliminate or reduce many of the impacts commented upon and to incorporate within the Plan some of the mitigations proposed. Where feasible the text of this Final EIR has been modified to reflect these changes. However where the statistical analysis is presented in the text and tables, it has not been revised because the effect of these changes statistically is minor and in the direction of improving the likelihood for success of that which is proposed.

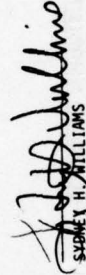
The more significant changes to the plan are as follows:

1. The draft referred to Seastrand South, consisting of 50 residential units and a private marina, plus Seastrand North, consisting of 40 residential units and a private marina. The Agency has purchased the 17.76 acre Seastrand South property and has added it to the adjacent 1.56 acre Pickleweed Park. The entire area is now called Pickleweed Park and is to be used in part for neighborhood open field type of recreation and in part for return to and preservation as marshland. That which was called "Seastrand North" is now called "Seastrand" and the 5 acre area formerly proposed as a private marina will now be returned to a tidal marsh. Wherever the text referred to 3 housing areas, it now refers to 2 (Spinnaker Point being the other one).

2. The nose which projected into the Bay and was proposed for a spoil dumping site has been deleted.

Associates: MARGARET W. RUSCHE, A.P. SANDRA MALANDRA STEVEN DONALDSON
 BETTY L. BASTY OR HOWARD S. LAPIN
 Environmental Planning • Urban Design • Human Services Planning • Economic Development Studies

3. The area referred to in the draft as "Lagoon Park - 86.48 acres for Conservation/Recreation Use with supportive Commercial/Industrial has been renamed and made more precise. It is now described as "Lands of Holiday Magic - 55 acres of lagoon proposed and the remainder to be developed as supportive commercial and industrial use".
4. In addition to the storm drainage lagoons referred to in the draft, the Final EIR lists 3 exsistant ponds that serve wildlife for preservation. They are south of the Lands of Holiday Magic and adjacent to the inside face of the shoreline levee.
5. Forty acres of mudflat and shallow tideland adjacent to and north of the Spinnaker Point site, at the mouth of the San Rafael Canal, are being acquired by the City for permanent preservation.
6. Anderson Drive is shown as terminated at the lands of Maggiora and Ghilotti.
7. Roadways and bicycle trails have been modified so that convenient vehicular access to parking areas at both ends and near the middle of the Shoreline Park is provided, but park use will be limited to pedestrians and bicyclists. Permanent access to the shoreline levee around Spinnaker Point is provided.
8. The interchange improvements of Highway 17 at Bellam and widening of Bellam between Francisco Boulevard East and Anderson Drive will be completed with Redevelopment Agency funds by the summer of 1978, prior to any traffic increases from the developments proposed in this Plan.


 STANLEY H. WILLIAMS

6/14/77
 Date

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LETTERS AND RESPONSES TO THE DRAFT EIR



Physical Setting 1

I. SUMMARY OF IMPACTS

Detailed plans will have to be examined in order to determine the impacts of dredging, piling, and fill placement on the shoreline and water depths as they pertain to existing geographic and topographic conditions. Channel dredging will permanently remove a portion of valuable mudflat and destroy a larger area. These activities will also contribute to hydrologic problems, as they degrade water quality by disturbing bottom sediments and putting them into suspension and by erosion which will add more sediment and lead to siltation in the lagoons and ponds. Suffocation of benthic animals may result. Construction activities will also have beneficial impacts when they are used to correct unstable slopes and areas where settlement is likely to occur. Settlement and slope instability are major problems in all the areas proposed for development while the one area of solid bedrock (Murphy's Rock) is proposed to remain in open space. Another area of bedrock was included in the ESR Plan Area at a recent R.A. meeting: the drive-in theater of Bellam Boulevard. Mitigation measures in the form of soil engineering and the use of earthquake and settlement resistant structures are proposed in this EIR but the effects of an intense earth tremor will nevertheless be disastrous in much of this area.

Water quality problems generated by the proposed East San Rafael Plan involve three drainage lagoons (See Map 3) and the San Rafael Bay (a part of the San Francisco Bay). Because of urbanization of presently vacant areas, runoff into all three lagoons will add contaminants not now present and the potential for algal growth will be high. However, the pump systems used to pump water into the lagoons from the Bay during the summer to replace water lost by evaporation could be used to more frequently flush out and circulate the lagoon waters. This activity would alleviate the problem of water quality in the lagoons. In the Bay, water quality problems already exist in the form of pollution from many sources. The proposed marina will add boats to the Bay which will discharge oil products, cleaning agents, bilge and sanitary wastes. Churning of the water resulting from boating will also contribute to shoreline erosion and siltation.

San Rafael's location makes the potential for pollution accumulation high because of meteorological conditions. However, because of the City's location

Summary
I-1

up-wind of major sources of pollution current air quality is good and pollution is almost entirely the result of automobile emissions. The East San Rafael project will generate small but non-negligible amounts of industrial and vehicle-related pollution.

The wildlife habitat value of the area will be further diminished by development as proposed in the ESR Plan. The impact, while extensive, will not involve any other than common animal forms. However, the impact on the adjacent native habitats, notably, the mudflats will be severe. Mudflats extend entirely around the bayshores of Spinnaker Point. Disruption through dredging on these will contribute to their demise, a serious situation because of the numerous functions of mudflats and the cumulative impact on birds which feed on mudflat creatures. Also, serious will be the loss of these unique land-forms.

Placement of dredging spoils in a way to create new marshlands is a recommended mitigation measure for already altered marshlands. However, a more acceptable and satisfactory mitigation for destruction of restorable wetlands would be to restore diked or altered wetlands in another area to tidal action of the Bay. This has been done by the City of San Rafael through proposed mitigation now included in the Plan which would preserve and restore several marsh areas throughout the project including Seastrand Marsh, Pickleweed Park Marsh, the three drainage lagoons and three ponding areas south of Spinnaker Point site.

The poor water quality of the lagoons, mentioned earlier, will make for very poor habitat value. Circulation of waters by pumping will improve their value. The proposed small craft marina harbor will provide habitat for some sport species of fishes, a possible mitigating effect. Mixed hardwoods in the San Quentin Ridge area will feel the impact of air emissions from increased automobile traffic and industrial activity as proposed in the ESR Plan.

The intent of the ESR Plan is to improve the industrial area visually although no specific details of the plan are yet available. No specific plans or details are available for either the industrial or housing and marina areas except for Spinnaker Point and the Marina, both subjects of separate EIR's. Open spaces will be preserved in the San Quentin hills and enhanced

Summary
I-2

1 along the presently bleak shoreline by the creation of a large natural area.
2 The ESR Plan transforms unimproved partial open spaces to several planned
3 environments and useable and conservation open space.

4
5 Traffic increases will be greatest along Bellam Boulevard east of Kerner
6 Boulevard (422 percent), on Kerner Boulevard, south of Bellam Boulevard
7 (262 percent), and on Anderson Drive south of Bellam Boulevard (103 percent).
8 Increases will be noted on all major streets in the area and will be greatest
9 in the weekday evenings. Capacity of Bellam Boulevard should be expanded to
10 four lanes before project completion to mitigate this impact.

11
12 Critical impacts will be felt at the Bellam Boulevard and State Highway 17
13 interchange and the Bellam Boulevard/Francisco Boulevard East intersection.
14 The impact on freeway traffic will be negligible. Additional mitigation
15 will be provided at the interchange by approved State highway plans to
16 redesign the entire intersection and improve Bellam Boulevard in 1978.

17
18 Traffic noises will contribute little or no impact (i.e., a 1-4.5 dBA increase)
19 on the present background noise levels in the ESR area. Along Bellam Boulevard
20 east of Kerner Boulevard, Kerner south of Bellam, Anderson Drive south of
21 Bellam, and the south end of Francisco, the impact will be minor (i.e., a
22 6-7 dBA increase).

23
24 Construction noises will be short-term; however, the effect on fauna may be
25 long-term displacement. Likewise, the existing police firing range contributes
26 single-event noise, but doesn't violate any standards and mitigation measures
27 would not be necessary due to the presences of dikes and landscaping surrounding
28 the site which reduce noise impacts considerably.

29
30
31 The impact of the proposed new high cost housing and the proposed industrial
32 development will be to provide separate beneficial impacts in terms of
33
34
35
36

Summary
1-3

1 revenues generated for the City. However, a far better proposal would have
2 been to provide some low and medium cost housing so that future employees
3 in the proposed industrial area could reside in San Rafael. In essence
4 then, the high cost housing will be occupied mostly by persons who do not
5 work in San Rafael and the industry will employ persons who do not live in
6 San Rafael. This short-sightedness of the plan will result in loss of revenues
7 and benefits and in continued reliance on and orientation toward the automobile.
8 It will also increase air pollution in the area since most San Rafael pollution
9 is emitted by vehicles.

10
11 Increases in the demands for public services will not be major. Repair of
12 roads cracked because of settlement and flood control improvements (if not
13 taken care of initially) will require the largest expenditures of public
14 funds. Flood control will be implemented at the beginning stage of plan
15 development by raising the level of the filled areas to a uniform and safe
16 elevation.

17
18 Water service may continue to be a problem for some time in Marin County.
19 Scarcities may have to be tolerated and conservation methods may have to be
20 employed.

21 Energy expenditures resulting from dredging and earthmoving will be equal
22 to the energy used in fifteen days by all other activities in the area including
23 traffic trips. Of course, once the earth has been moved there will be no
24 more energy expended while other activities will continue on a day to day
25 basis. Energy committed to the implementation of this project can be mitigated
26 by numerous do-it-yourself suggestions for the homes and more suggestions
27 for the industrial area. All are included in this EIR.

Ranking of Impacts

28
29 Impacts which may be expected to occur as a result of the proposed Marina
30 development have been summarized and are listed on the following page. The
31 following key explains the "shorthand" used to tabulate the type and degree
32 of the various impacts:

Magnitude of Impact: +3 to -3, extremely beneficial to extremely adverse.

Summary
1-4

Importance of Impact: 0-5 indicates a range of environmental significance from "no importance" to "major importance." (ON indicates that the impacts are felt on the project site; OFF indicates that the impacts are felt in areas other than on the site; CUM indicates that the impacts may have cumulative effects; SHORT indicates short-term effects; LONG indicates long-term effects).

Types of Impact: MIT indicates whether mitigation measures are included in the EIR (P); or are being planned by the developer (D). NA indicates that the impact is beneficial and mitigation measures are not applicable. In many cases, details have not yet been developed by the developer and so it is assumed that the proposed mitigation measures have not yet been incorporated in the plan. In such cases "None" appears in the MIT column.

In this matrix of impacts it should be noted that numerically ranking the impacts is a convenient but not entirely objective method of tabulation. The rankings represent the best judgment of the many specialists who worked on this project but are not indisputable.

An example of an impact which has cumulative effects would be destruction of mudflat which would result in the death of benthic forms. This would in turn have an impact on birds accustomed to feeding on mudflat inhabitants such as clams. Erosion and changes in the configuration of the shoreline are also effects which may result from this impact.

IMPACT ANALYSIS											
		1	2	3	4	5	6	7	8		
		Magnitude Importance									
DESCRIPTION OF IMPACT		-3 to +3	0-5	ON	OFF	CUM	MIT	SHORT	LONG		
<u>Geography and Topography</u>											
1. Dredging will alter shoreline and lagoon configurations.	-1	1	X				None		X		
2. Elevations of the land will be raised in some areas.	+1	3	X			X	NA		X		
3. Water depths will be increased in some areas.	+1	1	X			X	NA		X		
4. Dikes and Lagoons will be enhanced as unique landforms.	+3	3	X			X	NA		X		
5. Access to the Bay shore will be improved for the general public.	+1	5	X	X	X	X	NA		X		
<u>Geology and Soils</u>											
1. Settlement and slope instability are problems in all areas.	-2	5	X			X	P		X		
2. The potential for liquefaction during seismic activity exists in some areas.	-3	5	X			X	P		X		
3. The density and strength of Bay mud will increase over a period of five to ten years.	+2	4	X			X	NA		X		
4. Perimeter levees will initially experience decreased stability and will settle.	-1	3	X			X	P		X		
<u>Hydrology</u>											
1. Urban pollutant loadings will increase contamination of runoff water.	-3	5	X	X	X	X	P		X		
Summary 1-6											

Summary
1-6

Superv
1-5

	1	2	3	4	5	6	7	8
	Magni- tude +3 to -3	Impor- tance 0-5	ON	OFF	CUM	MIT	SHORT	LONG
3. Views of the bay water are not available from streets.	-3	4	X	X	X	P		X
4. Parking in streets will be necessary and will detract from appearance and view potential.	-1	2	X			P		X
<u>Historical and Archeological</u>								
(None)								
<u>Land Uses</u>								
1. A large informal open space will be lost.	-3	5	X	X	X	P		X
2. Partially altered open spaces will be restored to natural marshland and parks.	+3	5	X	X	X	NA		X
3. Proximity of a sanitary treatment plant and a firing range to the project is undesirable.	-1	2	X			D	X	
<u>Transportation and Traffic</u>								
1. There may be a reduced service level at Bellam Blvd and Hwy 17 intersection during early construction.	1	2	X	X	X	D	X	
2. Traffic increases will be substantial on all major roads in the area.	-2	4	X	X	X	D		X
<u>Acoustics</u>								
1. Traffic noise will increase existing noise levels but will remain within General Plan limits in all areas except along Bellam Blvd. and San Pedro Road.	-2	1	X	X	X	P		X
Summary I-7								

Summary

	1	2	3	4	5	6	7	8								
	Magni- tude +3 to -3		Import- tance 0-5		ON		OFF		CUM		MIT		SHORT		LONG	
1.	Construction of the pro- ject will produce high levels of noise.															
	-3	2	X	X	X	P	X									
2.	Firing range will produce high levels of noise.															
	-2	3	X	X	X	P	X	X								
<u>Demography</u>																
1.	An enclave of high-income residents will contrast with the East San Rafael populace															
	-1	3	X	X	X	P	X									
2.	Public and private uses interface and are not clearly differentiated. (e.g. backyards and pedes- trian access to Bay- shore).															
	-3	4	X	X	X	X	P	X								
<u>Economics</u>																
1.	Development of the project will facilitate population and labor force increase.															
	+2	5	X	X	X	NA										
2.	Existence of the project will strengthen the tax base for schools and the community.															
	+2	5	X	X	X	NA										
3.	The project when imple- mented will increase State subventions to the City of San Rafael.															
	+1	3	X	X	X	NA										

Summary
I-9

	1	2	3	4	5	6	7	8								
	Magni- tude +3 to -3		Import- tance 0-5		ON		OFF		CUM		MIT		SHORT		LONG	
4. Short-term construc- tion employment will be provided to the local labor force.	+2	4	X									NA				
5. The project will create a greater need for moder- ate income housing.	-1	5		X						X		P				
6. Creation of the project's open space parks will improve San Rafael's position as a tourism attraction.	+2	4	X	X						X		NA				
<u>Public Services</u>																
1. School enrollment will increase.	0	0		X								NA				
2. A large informal and natural open space will be replaced with urban areas.	-2	5	X	X						X		P, D				
3. East San Rafael young- sters will be deprived of the lagoon and a dirt bike trail.	-3	2		X						X		P, D				
4. Evacuation of some areas may be slow in an emergency.	-2	5	X							X		None				X
5. A large-scale disaster may result in difficulty in securing emergency services.	-2	5	X	X						X		None				X
Summary 1-10																

Summary
I-10

INDEX OF MITIGATIONS PROPOSED

	1	2	3	4	5	6	7	8	
	Magni- tude	Import- tance	ON	OFF	CUM	MIT	SHORT	LONG	
	+3 to -3	0-5							
8. Linear and shoreline parks will be difficult to patrol.	-2	4	X	X	X	P		X	VI-A-2
9. Backyard pedestrian ways will be difficult to patrol.	-2	2	X		X	P		X	VI-B-8
10. Differential settlement may result in cracking of street surfaces.	-2	4	X	X	X	P		X	VI-C-10
11. Flooding may occur as a result of levee failure or a tsunami.	-1	5	X		X	None		X	VI-D-15
12. Odors occasionally emanating from the treatment plant may be undesirable.	-1	1	X			D	X		VI-E-10
Public Utilities									VI-F-1
1. Water shortages will necessitate conservation measures.	-3	5	X	X	X	P		X	VI-G-1
2. Water shortages will cause cost increments.	-3	5	X	X	X	P	X		VI-H-4
Energy Consumption									VI-I-13
1. Residential uses will consume energy.	-1	5	X	X	X	P		X	VI-J-10
2. Vehicle trips will consume energy.	-2	5	X	X	X	P		X	VI-K-3
3. Industrial uses will consume energy.	-2	4	X	X	X	P		X	VI-L-21
4. Dredging and landmoving operations will consume energy.	-3	2	X	X		P	X		VI-M-1
									None
									VI-O-5
									VIII-1

Summary
I-11

Summary
I-12

Mitigation of Negative Impacts

The following is a summary of mitigations of negative impacts caused by the proposed project. The summary indicates the suggested mitigation and to what degree it has been included into the final plans for the project. This has been done in light of the fact that plans for the proposed project evolved along with commentary on the DEIR. The Final EIR will reflect these changes made in the proposed project.

Degree of Mitigation

INC indicates the mitigation has been included in the final plans for the project; INCF indicates that the mitigation has not been included into the final plans, but will be included some time in the future; INCN indicates that some of the mitigation suggested was included into the project plan but not to the degree suggested; NN indicates that the authors of the Plan felt no overriding reasons to mitigate the impact in the manner suggested.

In some cases, no mitigation was suggested to alleviate the impact indicated. This is shown by "unavoidable impact".

Summary
I-13

Summary of Mitigations

DESCRIPTION OF IMPACT	SUGGESTED MITIGATION	INC	INCF	INCN	NN	EIR PAGE NO
<u>Geography and Topography</u>						
1. Dredging will alter shoreline and lagoon configurations.	Open and restore altered wetlands habitats to tidal influence including Seastrand Marsh, Pickleweed Park Marsh, lagoon area south of Spinnaker and landscape portion of marina shore with pickleweed.			X		VI-A-2
<u>Geology and Soils</u>						
1. Settlement and slope instability are problems in all areas.	Require geotechnical engineering recommendations for any development to stabilize slopes and to maintain levee height to protect against inundation.			X		VI-B-8
2. The potential for liquefaction during seismic activity exists in some areas.	Same as above			X		VI-B-8
3. Perimeter levees will initially experience decreased stability and will settle.	Same as above.			X		VI-B-8
<u>Hydrology</u>						
1. Urban pollutant loadings will increase contamination of runoff water.	Implement a concerted street sweeping program reducing contaminants.			X		
	Bring supplemental fresh water to lagoons.			X		
	Exchange storm runoff in lagoons with bay water year round.			X		VI-C-10

Summary
I-14

DESCRIPTION OF IMPACT		SUGGESTED MITIGATION		INC	INCF	INCN	EIR NN PAGE NO
1							
2	2. Construction activities will produce silt-laden runoff on the Seastrand site.	Use of some type of erosion control method in construction.					
3							
4							VI-C-9
5	5. Biology						
6	1. Water quality of lagoons will deteriorate.	Recirculate water by pumping system or open lagoon to tidal action.					
7							
8	2. Modified marsh will be altered to form bayfill.	Holiday Magic property will be preserved and enhanced--Seastrand Marsh and Pickleweed Marsh.					VI-E-10
9							
10							
11							
12							VI-E-10
13	3. Mudflat habitats will be disturbed and in some areas destroyed.	Submerged wetland areas north of Spinnaker will be preserved and improved.					
14							
15	4. Benthic animals will die in some areas	Improving marsh areas; opening areas to tidal action will enhance new habitat development.					VI-E-10
16							
17							
18							VI-E-10
19	5. Small animal habitats will be physically altered.	Preserving and developing alternative open space areas for these animals.					
20							VI-E-10
21	6. Patterns of runoff will be changed and the runoff waters will be charged with contaminants.	Implement concerted street effort to reduce contaminants in runoff water.					
22							
23							
24							VI-E-10
25	Visual and Aesthetic						
26	1. Some open areas will be replaced by extensive housing.	Improve public access to scenic views of the Bay and access to water along with unobstructed views of the hills. Some housing has been dropped from Plan as well.					
27							
28							
29							Spin-
30							naker
31							Point
32	2. Views of the bay water are not available from streets.	Improve access to other areas which provide adequate views.					EIR
33							
34							"
35							
36							

DESCRIPTION	SUGGESTED MITIGATION	INC	INCF	INCN	EIR NN PAGE NO
1					
2					
3					
4	3. Parking in streets will be necessary and will detract from appearance and view potential.				VI-C-9
5					
6					
7					
8	Historical and Archaeological				VI-E-10
9	None				
10	Land Uses				
11					
12	1. A large informal open space will be lost.				VI-E-10
13					
14					
15					
16	Transportation and Traffic				
17					
18	1. There will be a critical reduction in the level of service at the Bellam Blvd. and Highway 17 intersection.				VI-E-10
19					
20					
21	2. Traffic increases will be substantial on all major roads in the area.				VI-E-10
22					
23					
24	Acoustics				
25					
26	1. Traffic noise will increase existing noise levels, but will remain within General Plan limits in all areas except along Bellam Blvd.				VI-E-10
27					
28					
29					
30					
31					
32					
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36					

Summary
1-15

Summary
1-16

DESCRIPTION	SUGGESTED MITIGATION	INC	INCF	INCN	INN	PAGE NO	EIR
1							
2							
3							
4							
5	2. Construction of the project will produce high levels of noise.						
6							
7							
8	<u>Demography</u>						
9	1. An enclave of high-income residents will contrast with the East San Rafael populace and Bayfront.						
10							
11							
12							
13	2. Public and private uses interface and are not clearly differentiated. (e.g. backyards and pedestrian access to Bayshore).						
14							
15							
16							
17	<u>Economics</u>						
18							
19	None						
20	<u>Public Services</u>						
21							
22	1. Proposed public parks will be deficient in accessibility, facilities, and total area.						
23							
24							
25							
26	2. A large informal and natural open space will be replaced with urban areas.						
27							
28							
29	3. East San Rafael youngsters will be deprived of the lagoon and a dirt bike trail.						
30							
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DESCRIPTION	SUGGESTED MITIGATION	INC	INF	INCN	NN	PAGE	EIR
1							
2	2. Vehicle trips will consume energy.						
3							
4							X
5	3. Industrial uses will consume energy.						
6							
7	4. Dredging and land-moving operations will consume energy.						X
8							
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II. INTRODUCTION

Purpose and Procedure

An Environmental Impact Report (EIR) is required by State law for projects which may have significant effect upon the environment. The EIR primarily is an informational document which informs the public and concerned agencies about the circumstances, conditions and effects of a proposed project and enables them to comment and possibly influence the decision on the project.

The Report describes the project and its environment; discusses the physical, social and economic impacts of and upon the project; analyzes and ranks the impacts; suggests measures to reduce the impacts; and describes alternatives.

The Report is initially submitted as a draft which is transmitted, or made available, to interested persons and agencies whose comments are solicited. Comments are received by the City of San Rafael and, along with comments, additions or corrections resulting from a public hearing, and necessary changes to the Plan, are incorporated in the Report as a final EIR. The decision to proceed with the project, as proposed or modified, rests with the City of San Rafael. The EIR does not make the decision, it merely provides a procedure for a more rational decision.

Report Format

The scope of an EIR generally is either simple or complex depending upon the nature of the proposed project. This EIR is relatively complex in that significant environmental impacts were anticipated, particularly in the areas of geology and soils, hydrology, biology, aesthetics, traffic and economics.

The Report is divided into discrete sections so that those interested in a particular subject can follow existing conditions, impacts, mitigations and unavoidable adverse environmental effects for that subject all in one section. References and bibliography used in each study area also are

Purpose & Procedure
II-1

contained in that section for easy reference. References used in more than one section are listed following the Project Description on pp. III-4 to III-6. Each reference section is identified by a capital letter and the sources listed by that letter are followed by a dash and a number. E.g. in Reference Section R, sources are listed R-1, R-2, R-3, etc. Then, in the text these sources are identified in parentheses as (R-1), (R-2), (R-3), etc. Each section begins with page one, preceded by the Roman numeral and capital letter designating that section. The impacts are summarized and quantified in the front of the Report.

The East San Rafael Redevelopment Area consists of five subareas for which specific plans will be prepared. The East San Rafael Plan is a very generalized plan dealing only with larger areas and general uses. The subareas are listed below:

- 1) Spinnaker Point
 - 2) Marina
 - 3) Pickleweed Park
 - 4) Seastrand
 - 5) East San Rafael Industrial Area and Shoreline Park
- Another subarea, the hills of the San Quentin Ridge will remain in permanent open space.

Development plans and the Final EIRs for Spinnaker Point and the Marina have been prepared and certified. Changes to the Marina and Spinnaker Point plans represent improvements to the general schemes outlined in the East San Rafael Plan even though they may not appear to be consistent with it. These inconsistencies are identified and resolved in the Final EIR.

Environmental Team

The EIR was prepared for the City of San Rafael by the Williams, Platzek & Moccine Environmental Team. The Team is composed of environmental generalists and specialists who worked both independently and collectively to compile the

Report. The Team members are:

Planning and Project Direction

Environmental Generalists:

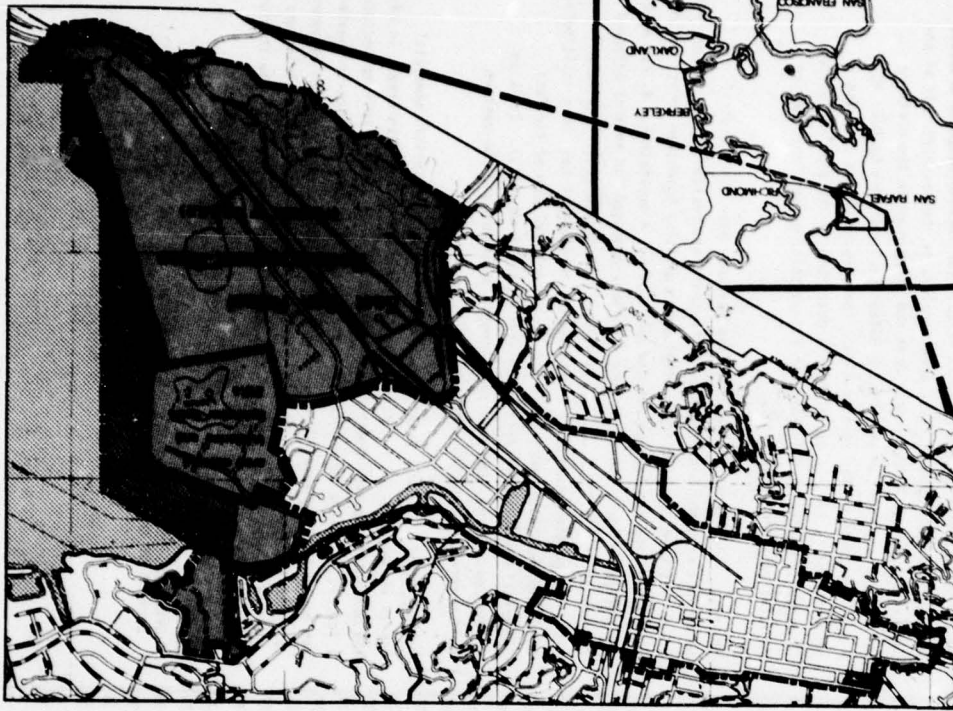
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II-2

Project Location 2



11-4

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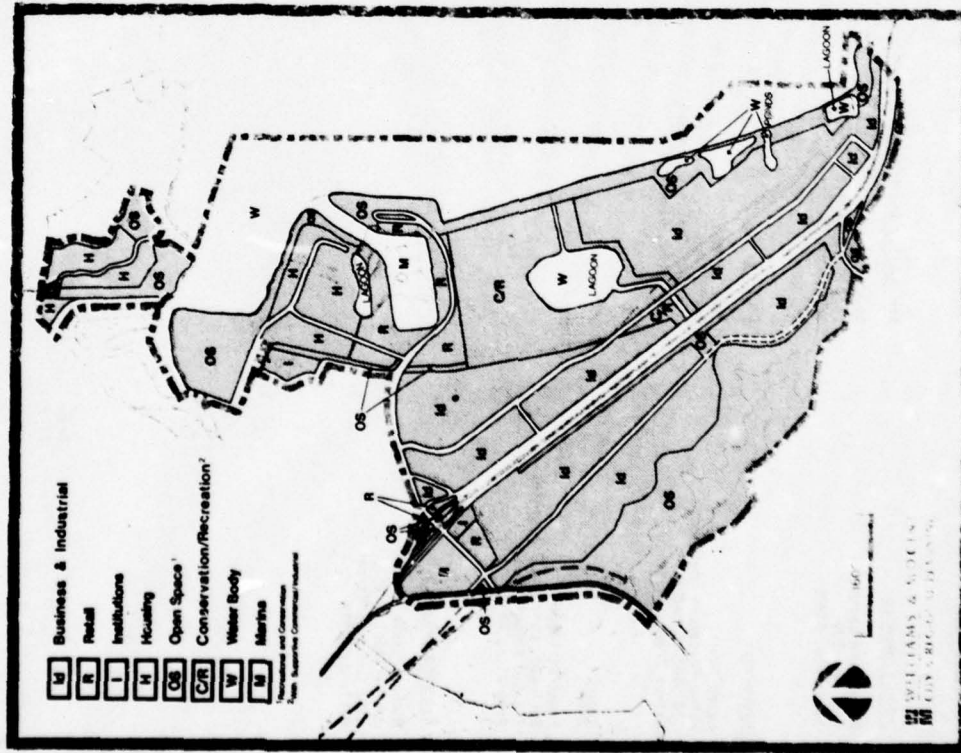
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Team
11-3



Land Use 3

11-5

III. DESCRIPTION OF THE PROJECT

The recommendations of the East San Rafael Plan include numerous proposed new uses and developments. The area involved is the southern half of the Central San Rafael Redevelopment Area and is bounded on the north by Bellam Boulevard on the east by San Rafael Bay the west by U.S. 101 and on the south by San Quentin Ridge. (See Figures 1 and 1). The project area is largely vacant and is described in the plan as follows: "A majority of the land in East San Rafael still exists in either an unfilled or vacant condition".

Housing: Two separate, vacant, Bayside areas have the potential, in accordance with the proposed Plan to be developed residentially. A separate E.I.R. has been prepared for a development entitled Spinnaker Point, which is proposed for the largest of the two sites. A separate E.I.R. has also been prepared for a 600 berth public marina, proposed for an area adjacent to, and south of, the proposed Spinnaker Point development. The other site having the potential for residential development has been entitled by the developer Seastrand. Seastrand is the only portion of the East San Rafael Redevelopment Area which lies north of the canal. It is an undeveloped parcel, the west side largely marshland and the eastern half severely sloping hillside.

Fringe Retail: A small seven to eight acre segment of retail commercial use (R on Map, fig. 3) is included in the East San Rafael Plan Area. In addition the San Rafael Redevelopment Agency amended the Plan in May, 1976 to include a four to five acre triangular site, presently occupied by a drive-in theater, and bounded by Highways 101 and 17, and Bellam Boulevard. The plan recommends refurbishing the retail outlets and setting and enforcing high building design, sign and landscaping standards. No specific recommendations for the theater

* Urban Design Development Policy Statement for the E. San Rafael portion of the Central San Rafael Redevelopment. p. 1.

Description
111-1

1	site have been made.	1	commercial, will have approximately 55 acres preserved as wetlands and open
2		2	space. Several other drainage ponds will be retained and improved for wildlife
3		3	use. The City of San Rafael, in making these changes in wildlife and open
4	<u>Industry:</u> The remainder of the East San Rafael Plan consists of areas shown	4	space areas, has developed a detailed Open Space and Wildlife Mitigation Plan
5	as Business and Industrial Review, Open Space Review, and Water-Oriented	5	in order to mitigate the destruction of certain wetland areas with implementa-
6	Review Areas in the San Rafael Land Use Policy and Review Area Map, General	6	tion of the East San Rafael Plan and to satisfy the concerns of commenting
7	Plan Map 1. The East San Rafael Plan trims down the industrially-zoned area,	7	agencies.
8	designating slopes and shoreline as open spaces. Property owners applying	8	
9	for construction permits would be required to fill their land to an elevation	9	Trails for pedestrians and bicyclists are combined and parallel all the
10	of nine feet above mean sea level until such time as the levee along the	10	major traffic routes (except Francisco Boulevard) and the shoreline. In
11	Bay front is reconstructed to City approved engineered standards.	11	addition, a 50 foot easement under the P.G. & E. powerline is to be developed
12		12	for trail use.
13		13	
14	<u>Open Space and Landscape Development:</u> The entire east shore of the East	14	Circulation: Kerner Boulevard would be extended to parallel East Francisco
15	San Rafael Plan Area is proposed for development as a Shoreline Park, a linear	15	Boulevard. Kerner would take over the function of a main industrial thoroughfare
16	open space of at least 100 feet width or more where needed for public access.	16	in East San Rafael. Left turns would be permitted along Francisco Boulevard.
17	from the mean high tide line. Additional area is to be provided for parking	17	
18	and park facilities at the northern and southern access points and a point central	18	Bellam Boulevard/Highway 17 interchange will be upgraded by the summer of
19	to the park. It is hoped that this land will be dedicated by land owners	19	1978 by CALTRANS and the Redevelopment Agency to cope with existing and projected
20	in the industrial area whose parcels extend to the bayshore when they seek	20	traffic volumes. Beautification work to improve the appearance of this major
21	development approval from the City for the balance of their parcel. A	21	entrance to San Rafael will be undertaken. Anderson Drive will not be extended at
22	bike trail and maintenance road will provide emergency access along the entire	22	the present time, but may be extended if necessary for the development of the lands
23	length of the park. Also being studied are several locations for a launching ramp	23	of Maggiora Ghilotti.
24	but the final location has not been chosen.	24	
25		25	Vehicular access along trails will be included in the design so that police
26	West of Highway 17, the Point San Quentin Ridge provides a significant	26	and emergency vehicles will be able to patrol and respond to calls.
27	backdrop for the southern portion of the Central San Rafael Valley. It	27	
28	is proposed to be retained in open space.	28	
29		29	
30	In addition there have been changes in the East San Rafael Plan which	30	
31	include expansion of wildlife and open space areas. Both Seastrand	31	
32	and, as mentioned, the Pickleweed Park Marsh will be preserved and restored	32	
33	to tidal action. The diked ponding area on the Holiday Magic site,	33	
34	designated as Recreation and Conservation with supportive industrial/	34	
35		35	
36		36	

Description
III-2

Description
III-3

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Description
III-4

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- R-21 C.H. Wells, Environmental Impact Report New Pillar Point Harbor Project El Granada, California, August 1975.
- R-22 San Francisco Bay Conservation & Development Commission, San Francisco Bay Plan, 1969.

Description
III-5

ORGANIZATIONS AND INDIVIDUALS CONTACTED (R)

1 Bahia Vista School, San Rafael--Harry Holliand, Principal
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4 Dan Coleman Associates, Inc.--Dan Coleman, President
5 Harding-Lawson Associates--F.C. Boarger
6 Keyser-Marston & Associates, Economic Consultants, San Francisco
7 Marin Municipal Water District, Corte Madera
8 Marin Sanitary Service, Solid Waste Disposal, San Rafael
9 Pacific Gas & Electric Company, San Rafael
10 Rockrise, Odematt, Mountjoy, and Amis; and EDAM, Inc. (Redevelopment Consultants)--
11 Hartmut Gerdes
12 Gerry Ryan, Resident, (East) San Rafael
13 San Francisco Bay Conservation & Development Commission--Alan Pendleton
14 San Francisco Bay Regional Water Quality Control Board--Norman Real
15 San Francisco State University, Dept. of Anthropology--Miley Holman, Archeologist
16 San Rafael Canal Community Council--Pauline Haro, Chairperson
17 San Rafael City Schools, San Rafael
18 San Rafael Community Development Office--Fred Auda
19 San Rafael Fire Chief Marcucci, San Rafael
20 San Rafael Planning Department, San Rafael--Herbert Hotchner
21 San Rafael Public Works Department, San Rafael--David Bernardi
22 Ely Caillouette, Jr.
23 San Rafael Redevelopment Agency, San Rafael--Stan Ott
24 San Rafael Sanitation District, San Rafael
25 Tele-Vue Systems, Cable Television Co., San Rafael
26 United States Army Corps of Engineers, San Francisco--Walter Boyle
27 United States Fish & Wildlife Service

Description
III-5

IV. EVALUATION OF GENERAL IMPACTS NOT RELATED TO THE SITE *

Population Projections for the Subregion

5 The proposed East San Rafael Redevelopment Project is located mainly in
6 Geographic Area 916 of U.S. Census Tract 1122. However, the proposed
7 Seastrand housing project is located across the San Rafael Canal, in
8 Geographic Area 610 of Census Tract 1102. In March 1976, the resident
9 population of G.A. 916 was 1,274 living in 592 households. The resident
10 population of G.A. 610 which is still mainly a marshland was nine, living in
11 four households. In 1970, the Census enumerated 3,387 persons living in
12 CT 1122. By 1976, the total had increased to 4,669,**an increase of 38
13 percent in the six years. The number of households in 1976 was 2,297,
14 which means that the average household size was only 2.03 persons. This
15 ratio occurs because so many of the residents live in multi-family structures,
16 apartments and condominium complexes. "Units tend to be small compared to
17 overall San Rafael averages, and the population tends to be young, composed
18 primarily of young families, couples, and unrelated individuals." (Table E-7)

20 The City of San Rafael almost doubled in population between 1960 and 1970.
21 The 1960 census counted 20,460 persons and by 1970 the population had reached
22 38,977. This represented an annual growth rate of over 6.6 percent. Growth
23 has continued, with 46,700 persons believed to reside in San Rafael in 1977.
24 The growth rate per year in the current decade is 2.65 percent, or less than
25 half the rate in the prior decade. Much of the earlier growth, of course,
26 had been achieved by annexation, in addition to natural growth and immigration.

28 Marin Countywide Plan projections (Table E-1) for the County and the San
29 Rafael Area (including Las Gallinas Valley and San Rafael Basin) are shown
30 on the following page.

* Total acreages designated for various land uses in the report may not be
consistent with the remainder of the EIR because of last-minute changes
which would have necessitated time-consuming calculations and rewriting of
text and tables, with very little change in results. It is felt that the
changes which were made would not be significant but represent a refinement
of the Plan.

** Special Census for San Rafael, State Department of Finance.

Pop. Projections
IV-1

TABLE E-1

Marin Countywide Plan Population Projections

	1960 Pop.	1970 Pop.	1980 Proj. Pop.	1990 Proj. Pop.
Marin County	146,800	207,000 (PRU fig.)	296,000 hi (market)	365,300 hi
San Rafael Area		57,400	81,400 hi 70,900 lo	101,700 hi 80,700 lo
SR Basin		31,600	40,200 hi 37,700 lo	45,600 hi 41,000 lo
Las Gallinas		25,800	41,200 hi 33,200 lo	56,100 hi 39,700 lo

The California State Population Research Unit (R-1, p.10) population counts and projections, October 1975, show that growth has not been occurring quite so rapidly as projected. The following table shows the actual growth for Marin County from 1970 to 1975 and three sets of projections to 1990, all of which are considerably lower than the Countywide Plan projections:

	1970 Pop.	1975 Pop.	1980 Proj. Series D-100*	1990 Alt. Proj. Series E-0(10) hi
Marin Co.	207,000	213,800	265,400	248,600
				277,200

Using these more recent projections and prorating them (according to judgment), the following assumptions about the project area are tabulated in Table E-2:

TABLE E-2

Population Projections for the East San Rafael Plan

	1970	1975	1980	1990
Marin County	208,600	213,800	233,200	265,400
San Rafael City	38,977	45,000	48,000	53,200
San Rafael Basin	31,600	n/a	35,900	40,700
CT 1122	3,387	4,600	5,500	6,000
CT 1102, GA 610	9	(1274 in GA 916)	121	121

* Series D-100 assumes a future level of fertility of 2.5 with a pattern of later childbearing than that used in the earlier projections, more in keeping with recent experience (R-1, p.3).

Pop. Projections
IV-2

In the preceding data given it should be noted that the 1975 population of CT 1122 had reached 4,669, which indicates an annual growth rate from 1970 of about 5.5 percent. This rate considerably exceeds the rates in the State's and County's figures for the area.

Economic Impacts on Adjacent Communities, the County and San Rafael

The East San Rafael (ESR) Area has the following distribution of land-using activities (acreages of these uses are given in the section on Fiscal Impact).

- Business and industry (other than retailing)
- Retailing (other than at the Marina)
- Institutional (governmental activities)
- Housing -- Spinnaker Point, Seastrand South, Seastrand North Marina
- Open Space

The Spinnaker Point housing site and San Rafael Marina EIR analyses and discussions are presented in separate reports, and the Seastrand housing sites are discussed in a subsequent part of "Economic Impacts," in this report.

Commerce, Industry and Retailing: The retailing area of ESR is 8.5 acres at the Marina site and 14 acres at the Drive-in Movie site. Other than these areas, no significant expansion of area designated solely for retailing is contemplated. It is possible, however, that additional retail/service establishments could locate along the northern side of East Francisco Boulevard, which is an area of commercial and light industrial uses.

Such additional activities would not impact on central San Rafael unless the "auto park" discussed in the Keyser-Marston report (E-1, p. XIII-5,6) were effectuated in East San Rafael. The K-M report discusses the possibility of four auto dealerships from West Francisco Boulevard relocating elsewhere in central San Rafael (because of a contemplated widening of Highway 101). Certainly the East San Rafael Redevelopment Area has the space and potential street

Economic Impacts
IV-3

1 and highway access for such an auto park. The move from West to East
2 Francisco Boulevard is not unthinkable: one dealership (Francisco Motors)
3 is already there. However, the idea requires "work" in the form of design
4 and economic studies.

5
6 San Rafael is expected to retain its preeminence in Marin as the center for
7 new car sales. An auto park for four and hopefully more dealerships in
8 ESR is a concept that would be physically feasible and probably economically
9 desirable for San Rafael - nonetheless the feasibility of the idea needs
10 study. The classical advantages of a unique site and highway visibility
11 of each dealer's sign have to be weighed against the less known but also
12 real advantages of a retail park site. Study would be needed of the particular
13 qualities needed in a site for this type of sales, and whether such qualities
14 can be provided in the milieu of East San Rafael.

15
16 The ESR Redevelopment Area could also impact favorably on the Central Area
17 by providing the space for additional corporation yards (storage places for
18 transportation, service and repair equipment of the City and various utility
19 companies) - thus permitting the shift in future years of such uses from the
20 area west of Bellam Boulevard.

21
22 At some future time, there could be a demand for auto parking space outside
23 the central district of San Rafael, to serve two purposes:

- 24
25 1) to provide all-day parking for commuters, for the users
26 of the Golden Gate Transit buses to San Francisco and
27 the connector buses to BART in the East Bay.
- 28
29 2) to provide all-day parking for persons working in central
30 San Rafael.

Economic Impacts
IV-4

31
32 To make such a parking facility feasible, it would be desirable that some
33 agency (probably public) provide connector bus service from the parking
34 lot to a) the nearest commuters' bus stops, and b) the downtown area,
35 probably looping on Fourth and Fifth Streets. The commuter connector bus
36 service would desirably be distinct from the downtown loop buses so as to
37 permit efficient concentration on the specific timing characteristics of the
38 services to be provided.

39
40 Another possible use of the ESR land might be for a food distribution center -
41 to serve a significant part of Marin County. Individual food enterprises
42 of large scale have their own centers, e.g., the Safeway Terminal in Rich-
43 mond. Availability of rail service is usually a requirement; however, a
44 spur or team track from the NWP line skirting the ESR area might be a possi-
45 bility (if feasible operationally at that location) -- but that subject is
46 beyond the scope of the present report.

47
48 The East San Rafael industrial area is in competition for tenants and land
49 buyers with other industrial tracts in Marin County. The Sausalito and Corte
50 Madera/Larkspur industrial areas (with a total of 485 acres zoned for this
51 use) have developed in past years, and the land prices there (@ \$2.50
52 to \$4 per square foot) are as high or higher than those in ESR. The ESR
53 industrial area has an impact on (to the extent it is competitive with)
54 those areas as well as the developed industrial parks to the north. Land
55 prices at the Ignacio-Novato sites run from \$2.25 to \$2.75 per square foot.

56
57 At the Bel Marin site, an estimated 15 acres are available to potential users
58 and about 50 acres are estimated to be available at the 57-acre Ignacio Industrial
59 Park. Including the bond price (assessment for improvements), finished land
60 prices in the Bahia de Rafael Industrial Park range at present from \$3.12 to \$3.20
61 per square foot. The prices of over \$3.00 per square foot in the Bahia de Rafael
62 Park are for fully developed land. On the other hand, there is accessible land in
63 the ESR industrial area, East of S.R. 17, selling at prices of from \$1.80 to \$2
64 per square foot, including the bond assumption cost. These sites require some
65 additional site preparation in order to accommodate industrial use. Since rail
66 transport in Marin is of marginal to zero interest for most all new industrial users
67 it may be said that the ESR industrial sites have roughly a 10-mile (highway) ad-
68 vantage over those in the Ignacio/Hamilton area. Some unimproved raw land in ESR
69 is believed to be still available for \$0.50 per square foot.

Economic Impacts
IV-5

1 Perhaps three or four years hence, industrial land (maybe 300 acres or more)
2 will become available at the site of former Hamilton Air Force Base.

3
4 New water connections are not yet approved for new industrial applications in
5 ESR, outside the Bahia de Rafael industrial park. This is a problem which
6 hopefully can be at least partially solved through the redevelopment process,
7 if the SRRA can obtain the right from the MWD to transfer some of the surplus
8 water connection permits on the Spinnaker site to others in the ESR develop-
9 ment area.

10
11 The ESR industrial and commercial areas can have quite a favorable impact
12 on the San Rafael area, and on broader areas within Marin, by reason of
13 adding to the employment base of the community. In general, it may be
14 estimated that industrial areas employ people at the rate of 30 to 35 per
15 acre, whereas office/administrative land usage employs persons at the rate
16 of 50 to 60 per acre.

17
18 The absorption of land in East San Rafael by type, and the additional employ-
19 ment which might result from its use is shown below.

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TABLE E-3

Acres in Use and Employed Persons ESR 1990			
Activity	Potential Increased Acres in Use 1976-1990	Potential Increase In Employment 1976-1990	
Industrial/Commercial	80	2,400	
Retail	9.5	160 to 200	
Utilities	8.9	90	
Storage, Disposal, Misc.	15	75	
Institutional	10	100	
Totals	123.4	2,825 to 2,865	

33 From the viewpoint of the community's economic health, the "basic" or
34 "export" types of industries, such as light manufacturing, are desirable and
35 of first preference. Those activities, such as storage, which provide
36 services to local people are less desirable since they do not bring in income

Economic Impacts
IV-6

1 from the "rest of the world." However, it is probable that San Rafael will
2 have to accept a considerable amount of community service activities in
3 ESR. In addition to whatever basic industries will locate there so as to
4 obtain, in a reasonable amount of time, productive development of this
5 land resource. To the extent there is a demand for such community service
6 activities, the indication exists that the San Rafael economy has need of
7 them. Thus, a blanket discrimination by officialdom against "non-export"
8 industries in favor of light manufacturing would be a short-sighted and
9 non-productive policy.

10
11 It is clear that the development of dozens of acres of industrial, commer-
12 cial, retail, and institutional land and land for public utilities will
13 involve over the years millions of dollars of investment, and will employ
14 hundreds of persons in the construction industry. The impact of this
15 short-term economic activity on San Rafael and the adjacent area will be
16 significant. The specific levels of activity per year are difficult to
17 forecast. What is more significant to the San Rafael economy than the
18 short-term effect of the construction employment however will be the longer-
19 term, regular employment of San Rafael residents in the various enterprises
20 in the redevelopment area. That potential employment numbers in the thou-
21 sands, as is detailed in Economic Impact and earlier in this section.

22
23 Industrial Land Absorption: It is possible to estimate roughly the rate of
24 future absorption of land for industrial purposes from the projection of
25 employment in the relevant categories (see Economic Conditions: Industrial).
26 However, the use of land for storage of goods for commercial, industrial and
27 even personal-use purposes does not easily read from the projections.
28 Projecting land acreage to be used for storage purposes, especially for
29 for personal-use storage purposes involves several subjective and difficult-
30 to-predict factors.

31
32 From available information,* it is estimated that on the average about 500
33 square feet of floor space per employee is required in Marin's types of manu-
34

35
36 * A survey on floor-space use and site coverage was initiated by Williams
and Macine during the present study in order to obtain precise data.

Economic Impacts
IV-7

facturing activities, and that the site coverage of single-level industrial structures is about 40 percent. Both measures are incorporated approximately in the multiplier of 0.03 acres per manufacturing employee. A multiplier of 0.08 acres per employee is used for projecting space needs in TCU categories, which factor will of course be lower for some and higher for other specific activities in this broad category.

Estimates of industrial land demand (exclusive of storage) in Marin, 1976-1980 and 1980-1990, are shown in Table E-4 below.

TABLE E-4
Industrial Land Demand

Type of Industry	Land Needed Ratio Acres	Estimated '76-'80		1980-1990	
		Employment Change	Employment Change	Employment Change	Needed Acres
Manufacturing	.03	9.8	328	860	25.8
TCU	.08	22.4	280	1,190	95.2
Wholesale	.08	25.3	316	820	65.6
Totals		157.5			186.6
Total through 1990					244.1
Yearly average absorption Marin County (exclusive of land needed for personal storage)		14 to 15			18 to 19
Potential yearly average absorption, San Rafael		6 to 7			8 to 9

In the competition with the Ignacio-Novato area for new industries (and particularly with a new Hamilton Field site for industry), the quality and price of land (and particularly of prepared land) in San Rafael will determine whether or not San Rafael's transport advantage (except for rail) over the northerly sites will prevail. One of the concepts of redevelopment in San Rafael, is of course to increase the competitive advantage of the potential industrial sites in ESR relative to those elsewhere in Marin. Improvements in grade, elevation above mean sea level, and drainage are highly important in this regard, particularly on the south side of S.R. 17 (which suffered flooding in 1958). Grade and drainage improvements are usually more feasible when undertaken on a large scale, rather than on a

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placement basis. The potential to upgrade the hitherto little-used sites forms a major reason to include this part of San Rafael in the Redevelopment Area.

Housing: The County Planning Commission has projected the need for new housing units in Marin County at two levels based upon alternative growth assumptions: "growth-oriented" and at the growth rate projected in the Countywide Plan. The Countywide Plan projects the number of new units at 2,100 per year between the present and the year 1990. This level is approximately two-thirds that of the "growth-oriented" need. With the problems of water and sewerage capacity in the County, plus the apparent wish of a number of the County's residents to limit growth, it seems safe to base estimates of minimum needs on the lower of the two figures.

The developer's concept for the Seastrand project has a total area of 34 acres, a part of which would be set aside for private recreational use. A low density of housing is proposed for this site, with a total of 40 units. It can be argued that some part of this site should be used for public open space, particularly because of the features of the natural marsh on the site, the sweeping views which are possible from the Cypress Point hillside, and because of the slide potential of the upper parts of the hillside adjacent to Bellevue Road.

At the time of preparing the Draft EIR for this project, a proposal for housing at the Seastrand South site (Pickweed Park) was included which consisted of 50 townhouse units. This portion of the project has been eliminated in favor of open space uses on the site. However, the economic analyses which follow are based on the assumption that housing will occupy Seastrand South.

It is directly relevant that a total of 225 housing units has been approved for construction on the Spinnaker Point site. The total number of new housing units in the East San Rafael Redevelopment Area would, when fully developed, be 239 housing units, or about 12 percent of the new housing requirements for a single year in the County. Since a period of five years is probable for the time span over which the houses on the two sites will be brought onto the market, it seems clear that the Seastrand proposal and the Spinnaker proposal do not

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IV-9

1 represent an undue concentration of the County's needs in a single area, and the
2 proposals are thus not likely to have a negative effect on other communities of
3 Marin. The proposed developments could, however, draw away a relatively small
4 number of families from existing homes in adjacent cities (as well as from other
5 parts of San Rafael itself). The possible shift effect is quite small in the
6 overall.

8 As of the present writing, water connections are not available for housing use
9 at the Seastrand site; however, the Redevelopment Agency hopes to
10 obtain a reallocation of the 400 plus water "connections" which are surplus
11 to the Spinnaker site. If such a reallocation can be obtained from the Marin
12 Municipal Water District (and it seems logical to expect same), the allowed
13 connections would be distributed among the various water-requiring activities
14 in East San Rafael, which include the Seastrand site, the proposed marina,
15 and the proposed additional retail, and wholesale and industrial activities.
16 At present, there is one water connection for the existing Pickleweed Park,
17 which was obtained on a special use permit. It is assumed, however, that the
18 present intensity of Marin's water problems will not continue unchanged over
19 the foreseeable future.

21 The number of homes expected at the Seastrand site, 34, is well within
22 the level of demand projected by the economic consultants Keyser-Marston (E-1).

24 The K-M figure (E-1, p. X-7) for residential market demand in the Bayfront
25 area of the San Rafael Redevelopment Area is from 500 to 1,000 units total in
26 the period from 1974 to 1980. Thus, the Seastrand North concept plus Spinnaker
27 Point would provide about three-fifths of the lower level of projected demand
28 in the period to 1980 (within which period it is expected that most of the
29 houses would be put on the market).

31 The K-M Consultants also noted that luxury dwellings could be marketed in the
32 Bayfront Area (which can apply to the Seastrand as well as Spinnaker sites)
33 provided there were an associated "water element," which could mean either a
34 marina, a marine park, or both. Details are not available on the designs of
35 the homes for the Seastrand site other than the numbers and price levels.
36 It is expected that thirty-four homes ranging from \$125,000 to \$200,000
would be developed at Seastrand.

Economic Impacts
IV-10

1 While the consultant's report indicates the number of homes which might be
2 sold, and that luxury dwellings might be marketable, they do not indicate the
3 price range of homes which would be optimal for the economy of San Rafael
4 or for the success of the East San Rafael project as a whole

6 The percentage of San Rafael's homes, as of 1970, which were valued at
7 \$50,000 or more (17.1 percent) was two and a half times the average for
8 the San Francisco SMSA. (E-6) Southern Marin County is clearly a locale
9 where luxury homes are desired. Whether there will be a demand for them
10 at these particular sites in the San Rafael Bayfront Area, and at the developer's
11 prices, will depend on the quality of the design and construction of the
12 project and on the ambience created by the adjacent private berths and open
13 space and shoreline treatment.

15 Even though the condominium and apartment buildings immediately to the west
16 of the Pickleweed Park include units of considerably lower market value,
17 that same area has a significant number of high-value individual homes,
18 mostly along the San Rafael Canal. Hence, the proximity of the lower value
19 multiple units is not necessarily a depressant on the marketability of
20 luxury homes in Spinnaker Point. Yet the fact remains that the marketability
21 of both developments will depend directly on the intrinsic quality with which
22 the designers and builders provide it.

24 It is clear that preparation of the land and development of houses and
25 town homes will create employment in the construction industry. Perhaps
26 110 to 120 men could be provided with up to one and one-half years employ-
27 ment on this project (omitting the modest multiplier effects on the community).
28 This figure is a man-year average, of course. Some of the construction jobs
29 will be of short duration, and others may last several years. In the longer-
30 term, the new residents will provide a market for the services trades, and
31 will add to the demand for localized shopping facilities.

33 It is estimated that one-time fees of about \$58,400 would be required of the

Economic Impacts
IV-11

1 developer by the City of San Rafael. The fees are shown below for the two*
2 Seastrand project.

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TABLE E-5
Fees to Developer of Seastrand Property

Building permit fee	\$ 3,637
Plan check	2,818 (half of the permit fee)
SMIP	1,652
Development	12,083
Plan retention	22
Sewer fee	10,000
Grading and plans fees	222
Total	\$32,434

The building permit fee is based on a flat fee of \$887 plus one dollar per
\$1,000 of construction over \$500,000. The fee calculated above is based on
a construction cost including that of land development and site preparation.

The SMIP fee is to finance a seismic research program by placing Strong
Motion Instrumentation in various high buildings. Development tax is
based upon a flat \$75 per bedroom in the proposed project. Plan retention
is a nominal fee to file and store the plans and papers of the project.
The sewer fee is set at \$200 per dwelling.

It should be noted also that the City imposes one-time fees on the construction
of industrial property at the rate of \$.05 per square foot, and on commercial
property at the rate of \$.10 per square foot. Warehouse structures are
considered to be "industrial" for this purpose. (Reference, Chap. 3.25 of the
Municipal Code).

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IV-12

Fiscal Impact

Fiscal impact is measured by the difference between anticipated future public
revenues of proposed development and the added costs to government occasioned
by such development. The revenues are principally derived from the annual
taxes on real property and improvements on the land and personal property,
though there are also one-time licenses and fees which go with construction
and development. With relatively small projects, say housing projects totaling
90 units, it is possible to estimate fairly readily the tax revenues (in 1976
dollars) from full development of the project as of the year of maturation of
the projects. With a project of the scale of the East San Rafael area, however,
which includes space for industry, wholesaling, retailing, storage, transpor-
tation, utilities, governmental activities (institutional), housing and re-
creation, it is necessary to select a future year which is within reach of fore-
casting technique and to test fiscal impact as of that time. In this report,
the year 1990 has been chosen. That represents the forecast year in the eco-
nomic report to the Redevelopment Agency (E-1). By that time, not all the
acreage will have been developed; yet, it is far enough into the future that
the greater part will have been. For reasons given in subsequent text, esti-
mates are also given as of the year 1902.

The main finding of this chapter is that: as the industrial area of ESR matures,
and assuming that a retail sales volume of at least \$9.4 million per year is
attained at establishments in the ESR area, the area is expected to be able to
recover in direct tax revenues to the City the costs of providing the required
municipal services.

The proposed housing projects, Seastrand South* and Seastrand North, are treated
separately from the other land uses in the following sections. There is one
element in common among one of the housing projects, Seastrand South and the
various other projects proposed between that location (on the Canal) and San
Quentin Ridge, and that is policing. After a unit cost for police services
is estimated for Seastrand South, that cost is incorporated in the overall
estimate for the entire East San Rafael area, on the assumption that as the
industrial/commercial/recreational area approaches maturity, a full new beat
will eventually be established, requiring the services of five patrolmen.

* Deletion of the Seastrand South housing development from the ESR Plan
occurred after the Economic Evaluation was made.

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IV-13

TABLE E-6
EAST SAN RAFAEL (less housing)
CITY COST IMPACT CALCULATIONS (as of 1990)
1976 dollars

Item	Type of Parameter	Current Unit Costs ^a	Physical Increment of Proposal	Yearly Added Costs of Proposed Devt.
Executive and Admin. Services	slight	---	---	---
City Fire ^b	slight	---	---	---
City Police	increase	see text	see text	\$ 87,450
Streets Maint. ^c	increase	road length \$601,000 150 mi. = \$4,007/mi	2 1/2 miles	10,000
Parks, Open Space ^d	increase	see text	230 acres	68,960
Sewerage	increase	gpd wastewater \$40/1000 gpd	180,000 gpd	26,300
Misc. (inc. inspection)	increase	estimate	---	4,000
Notes: ^a Operating or maintenance cost data are taken from the budget report of the City of San Rafael: Program of Municipal Services, 1975-76.				
^b New industrial building standards plus favorable fire station location and other departmental planning for the area are expected to keep incremental costs for fire security to a minimum.				
^c Includes street maintenance and cleaning, street painting, storm and sanitary sewers, and street tree and parkway maintenance.				
^d If the housing developers acquire the open space adjacent to the Sea-strand sites, the "Parks, open space" annual cost would drop to \$39,600 and the overall city cost for ESR would be \$167,350.				
Notes: ^a Operating or maintenance cost data are taken from the budget report of the City of San Rafael: Program of Municipal Services, 1975-76.				
--- \$196,710				

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IV-14

1 Calculations of Fiscal Impact: The technique underlying the calculations of
2 fiscal impact in Table E-6 is that of computing the cost of units of each type
3 of service, and then multiplying that cost by the number of units which the
4 proposed project would add to the scope of services now provided by the City of
5 San Rafael. Thus, an average unit-cost technique is used, except in those
6 cases where a major change is anticipated, as in the case of the police services
7 for East San Rafael wherein an incremental cost technique is employed. The
8 proposed development will not have significant impact on some of the City services,
9 the major ones of which are also noted in Table E-6.

11 The current average unit costs (1975-76 budget) were obtained based on the total
12 operational budgets (less capital improvements) divided by the total units
13 being provided or provided with services.

15 For example, it was observed that the streets maintenance budget applied to
16 150 miles of streets within the City. Dividing the annual non-capital budget
17 by 150 yielded an average unit cost of \$4,007 per mile. In East San Rafael,
18 one and one-half miles of new street will be added (Kerner Boulevard). In this
19 case, a figure of \$6,010 per year is added for the increased maintenance. In
20 addition, one mile of an existing street will be rehabilitated to handle the
21 future traffic load.^a

23 Police Services: As East San Rafael develops, it is expected that a full beat
24 will be established there. The beat will require "one officer", that means a
25 contingent of five patrolmen plus one vehicle. The average cost of a patrolman's
26 salary plus benefits is taken as \$23,000. Operating cost of a vehicle is taken at
27 \$229 per month, and capital cost is taken as \$2,250 per year, assuming two years'
28 life for the vehicle and four for the radio equipment. The cost of five patrol-
29 men plus one vehicle is thus estimated to be \$120,000 per year. However, \$14,000
30 of annual cost has been assigned (see Marina EIR Report) to the proposed
31 public marina and this area would be within the new beat. Therefore, the esti-
32 mated annual impact of police services in East San Rafael is estimated to be

33 ^aSome or all of the capital cost may be distributable to the property owners who
34 are most directly benefited by the proposed rehabilitation. The capital cost per
35 year of the rehabilitation is estimated at \$4,070. This is based on an estimated
36 initial cost of \$40,000, interest at eight percent, and a 20-year payment period
(which corresponds to service-life).

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\$106,000 per year.

There is a possibility in more distant future years, that additional policing would be required of the extensive open spaces proposed in East San Rafael, on weekends. If so, the added services might require one ranger and one traffic officer. Vehicles required would be one automobile and one motorcycle. These men would be required two to three days per week each (weekends) depending on the season of the year. Their salary cost plus benefits is estimated at \$23,000 plus \$3,100 for half-time use of one car and one motorcycle (all costs), yielding a total cost for such additional open-space policing of \$26,100.

Since the proposed Spinnaker Point housing project would be included in the new beat, their police service costs are netted from the above total. Thus \$106,000 less \$14,000 equals \$92,000 and the net incremental cost for police services in the ESR area for purposes of this report is, therefore, taken as \$87,450. (This amount being a part of the \$120,000 addition for all ESR except Seastrand.)

Fire Services: No incremental cost is added for the future needed services of the San Rafael Fire Department. By planning, a fire station is located conveniently for the ESR area. Further, the City's recent ordinances for fire protection in new industrial buildings should keep down the number of calls upon SRFD's services. The costs of fire protection of the new buildings will thus largely be absorbed by the owners/users.

Specifically, the ordinances provide that buildings with 5,000 to 15,000 square feet of space must have smoke detection equipment plus a direct communication line to the Fire Department. Buildings with 15,000 square feet or more must have installed fire sprinkler systems.

Open Space: It is expected that the costs of maintaining the open space areas in ESR will vary with the types of park, natural marshland area or forest

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preserve to be provided. These costs are sketched out below:

TABLE E-7
Open Space Maintenance Costs

Name	Type	Area Acres	Est. Maint. Cost per Acre per Year	Est. Totals
Shoreline Park	urban park	20 ^a	\$1,500	\$30,000
Holiday Magic	wetland area	55	50	2,750
Property	(land)			
San Quentin Ridge	forest preserve	123.4	20	2,470
Seastrand North ^b	open space	8	70	560
Seastrand South ^b	urban park			
Pickleweed Park	open space	19.5	2,000	39,000
Totals		225.9		\$74,780

It is assumed that the Shoreline Park will require an "urban park" level of maintenance, whereas the Holiday Magic and especially the San Quentin Ridge area (as natural open space) will require modest investments of time and effort by the City's park personnel. The figure on cost of maintaining forest preserve lands is based upon Marin County experience, with figures ranging from \$13 to \$15 per acre.

Inclusion of the proposed open space land on the two Seastrand sites follows the ROMA plan. Because of the need to maintain consistency with the only available formal plan as of this writing, the Seastrand open spaces are included in the calculation on the basis that they will be public parks. The park areas are taken as eight acres for Seastrand (North), and 19.5 acres for Seastrand South. Current planning (as of Final EIR preparation) is for 4 to 5 acres for Seastrand (North) and 19.4 acres for Pickleweed Park (Seastrand South).

With Seastrand sites included, the annual ESR open space maintenance cost (less the Spinnaker and Marina sites) is estimated to be \$75,160. With the Seastrand sites omitted, and a two acre Pickleweed Park included, the figure is \$39,600 per year. (These estimates may be on the low side: for example, the Seastrand South maintenance cost for an urban park might exceed \$2,000 per acre.)

^aThe area of the Shoreline Park is estimated at 20 acres, since its width is to be of the order of 100 feet. The area of the park as shown in the plans was 38.5 acres, based upon the now abandoned concept of a width averaging 200 feet.

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Streets Maintenance: The improvement of the ESR streets system will involve the provision of an additional one and one-half miles of street on Kerner Boulevard and rehabilitation of one mile of East Francisco Boulevard. The annual cost for the additional maintenance on Kerner Boulevard is taken as \$6,010 per year.

It is true that there will be considerably more traffic on the streets of East San Rafael than at present. It is also true that the local thoroughfares such as Irene Street, were financed and built in anticipation of the future traffic loads and are presently under-utilized. The maintenance budget for such existing and presently under-utilized streets was anticipated in the past, at the time of their construction and is not now a fair charge against the possible future development. However, if Francisco Boulevard is to be widened because of the traffic needs of East San Rafael, as it develops, then the cost of the incremental maintenance expense each year would be justified as an additional item in Table E-6.

Wastewater: The daily volume of wastewater was estimated as of the year 1990 when a considerable amount of possible development will have occurred in East San Rafael. The volume is estimated roughly at 180,000 gallons per day based upon the various uses of the land, the numbers of employees by types of industry and preliminary unit rates of wastewater production for such activities. For example, the production of wastewater per industrial employee was taken as 30 gpd, on an average basis.

Water: It is quite probable that a new water storage tank will be needed on San Quentin Ridge for service to the developing ESR industrial area as it matures. The facility would be installed by the MMWD. It is too early to determine how the cost of that facility would be spread among the consumers.

Future Land Use: Following analysis of the data in the economic report (E-1) and the economic data in the present report (Economic Conditions and Economic Impact) estimates were made of future land absorption in East San Rafael, by type of land-using activity. These estimates are given in Table E-8 on the following page.

TABLE E-8

Land Use ^a	1976 Acres	1982 Acres	1990 Acres	Net Absorption 1976-1990
Industrial/Commercial	20	54	100	80
Retail	8.5	12.5	18	9.5
Utilities	11.1	15	20	8.9
Storage, Disposal, misc. Housing ^b	45	51	60	15
Seastrand North	---	23.2	23.2	23.2
Institutional (tax-free)	58 ^c	63	70	12
Public Open Space	2	230	230	228
Parking ^d	---	6	13	13
Total	144.6	460.7	540.2	395.6

The open space acreage for the future (except for the Shoreline Park proposal for which the acreage is halved) is taken directly from the ROMA plan for East San Rafael. All the other acreages for the target year, except for the industrial commercial use, are considered to be conservative in terms of potential future demands. Industrial/commercial land absorption, at the rate of about six acres per year, however, is on the moderately optimistic side. Without continuance of the Redevelopment Agency's overall plan, and without aggressively promoting the area, the industrial/commercial acreage figure could fall well short of the estimated 1990 total of 100 acres.

Estimate of 1982 Tax Revenues and of Fiscal Impact: The year 1982 may be the last in which revenues are distributed according to the special redevelopment allocation (Tables E-4 and E-5) unless the County Redevelopment Agency agreement Notes:

^a excludes the Spinnaker Point housing area and proposed public marina to the south of that housing; these projects are dealt with in separate EIR's.

^b Acreages shown above are those given in the ROMA plan, and do not agree with figures of the private developer. The latter includes the adjacent open space within the project, assuming it to be private recreational space for use of the residents only. As of the Final EIR, Seastrand South Housing has been dropped as part of the Plan.

^c Assumes the following distribution of tax-free land: City of San Rafael about ten acres; MMWD, 10 acres; Golden Gate Transit, 25 acres; and SR Sanitation Dist., 13.2 acres. The 1.1 acre site on which the Post Office is located is in private ownership.

^d The ROMA plan calls for 6.8 acres of parking, near the proposed public marina and adjacent to the Lagoon Park. The additional 6.2 acres is assumed to be needed as an outlying parking lot for customers.

of 1973 is renewed, because in 1982 the Redevelopment Agency is due to be phased out. Since the agreement may not be renewed, it is of interest to calculate the impact of revenues vs. expenses for the ESR area as of the year 1982 even though revenues will continue after the Agency's expiration.

An estimate of assessed valuation (AV) on the taxable land, and improvements in 1982 (other than housing and the proposed public marina) in East San Rafael was prepared using the parameters shown in Table E-12, and the 1982 acreages shown above. The figure for 1982 was computed as \$4.604 million. This figure, less the 1972 assessed valuation for that land and property (and less the value of ESR land which in 1982 will be in open-space use) constitutes the multiplier for calculating tax revenues to the Redevelopment Authority and the school and college districts. The 1982 incremental AV is estimated to be \$2.467 million. The computation of those revenues is shown in Table E-9. The 1972 AV was taken from Table E-14. The comparison of public revenues with public costs is also shown in Table E-9, and the net impact (positive) is given as \$57,660.

A composite table E-10 is presented to show the fiscal impact when housing areas (Seastrand sites) are considered together with the other taxable land uses in East San Rafael. That 1982 incremental AV is estimated to be \$5.269 million and the net positive impact, \$247,800.

While the ultimate calculation of this type must be made for the entire Central San Rafael Redevelopment area, until all the studies are complete, tests such as these are conducted on the fiscal "feasibility" of the components. If all the components prove to be feasible, then presumably, so would the totality. On this point, it is interesting to note that the AV for the ESR area (plus the Spinnaker Point housing site plus the proposed public marina site) increased at an annual rate of 12.8 percent from 1972 to 1975. The annual AV increase rate, 1972 to 1975, for the ESR area (including the Seastrand sites, omitting Spinnaker and the Marina) was, including property and improvements, 10.7 percent. It will be interesting to see if the Central San Rafael AV's have simultaneously increased enough so that the overall average increase rate for the S.R. Redevelopment Area equals the "formula" 3.8 percent. (See p. VI-N-28 line 14 discussion).

Since on the completion of the housing projects and early development of the ESR area, there will be a strong financial return to the Redevelopment Agency, it is

TABLE E-9
SUMMARY OF EAST SAN RAFAEL
REVENUE/COST IMPACT: 1982
(less housing)

Source	Annual Costs	Annual Revenues ^a	Net Impact Dollars
Municipal Services	\$196,710	----	----
Property tax to Redevelopment Agency, @ \$10.311/\$100	----	\$130,120	----
less payments to schools and colleges	----	43,740	----
Payment by Agency to elementary schools	----	53,580	----
Payment by Agency to high school	----	26,930	----
Payment by Agency to Community College	----	----	----
@ \$1.053/\$100 ^b + fixed payment, prorated (\$950)	----	----	----
Totals	\$196,710	\$254,370	\$57,660

Notes:

^aIncremental assessed valuation (AV) equals the estimated AV in 1982 (\$4.604 million) less the 1972 AV of \$2.137 million.

^bThese represent rates set in the current tax year.

TABLE E-10
SUMMARY OF EAST SAN RAFAEL (with housing)
REVENUE/COST IMPACT: 1982

Source	Annual Costs	Annual Revenues ^a	Net Impact Dollars
Municipal Services	\$256,060	----	----
Property tax to Redevelopment Agency, @ \$10.317/\$100	----	\$278,900	93,410
less payments to schools and colleges	----	----	----
Payment by Agency to elementary schools	----	----	----
@ \$1.773/\$100 ^b	----	----	----
Payment by Agency to high school	----	114,430	----
@ \$2.172/100 ^b	----	----	----
Payment by Agency to Community College	----	56,510	----
@ \$1.053/\$100 ^b + fixed payment, prorated (\$1,030)	----	3,360	----
State subventions @ \$20 pop. (new residents only) ^c	42,750	----	----
School services, full public cost	----	546,610	\$247,800
Totals	\$298,810	\$546,610	\$247,800

Notes:
^aIncremental assessed valuation (AV) equals the estimated AV in 1982 (\$7,579 million) less the 1972 AV of \$2,3104 million.
^bThese represent rates set in the current tax year.
^cThis represents the average revenue per capita received from the State in "in lieu" taxes, gasoline taxes, the 2106 program, etc. Assumes that residents of 2/3 of the 90 dwellings move to San Rafael from elsewhere.

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reasonable to expect that an agreement will be worked out between the City and the Agency to support some of the incremental costs of municipal services in the years while the Redevelopment allocation formula applies, provided such payments do not detract from the Redevelopment process.

A Note on the Use of 1976 Dollars for the Estimates: The point should be observed that all the calculations for future years are in constant dollars. With an average yearly increase for example, from 1975 to 1990 of 3.8 percent per year, the 1990 dollar values would be 75 percent greater than those in 1975, and those interested in this aspect of the matter may make the multiplication. However, for the purposes of comparing revenues with costs in future years, it is recognized by most practitioners in this type of feasibility analysis that it is necessary to stay with constant dollar analyses in order to get a reasonably true comparison. Costs (except for loan payments) and revenues will tend to escalate together; hence, less is lost by using the constant dollar basis than would be if the known parameters were abandoned. The ability of readers to judge the estimates based upon what is known of relative costs for one thing, would be diminished.

Estimates of 1990 Tax Revenues and of Fiscal Impact: An estimate of assessed valuation on the taxable land and improvements in East San Rafael (other than housing) is shown in Table E-11. The figure for 1990 is estimated at \$8.148 million without housing, and \$11.123 million with the housing at the two Seastrand sites. The direct tax returns to the City are estimated as follows, as of 1990 (in 1976 dollars).^a

Table E-11
1990-Estimated Tax Returns to San Rafael

	ESR without Seastrand Sites	ESR with Seastrand Sites	Total
property taxes	\$ 81,480	\$25,300	
sales taxes	140,000 to 178,000	----	
business license fees	21,000	----	
state subventions	----	3,360	
totals	\$242,480 to \$280,480	\$28,660	\$271,140 to \$309,140

Note:

^aThe calculations above are based on the assumption that the current redevelopment allocation formula does not apply as of 1990. This would occur if the 1973 agreement between the County and the Redevelopment Agency is not renewed prior to December, 1982. Calculations under the current allocation basis are given in the estimates of revenues and costs as of the year 1982.

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The comparison of the costs of municipal services with estimated tax revenues, in 1990, is shown below.

TABLE E-13

Item	Without Seastrand Housing Sites	No. & So. Seastrand Housing Sites	Totals with Housing
Municipal Services			
ESR industrial/commercial area	\$196,710		
with public parks at Seastrand		\$59,350	\$256,060
without public parks at Seastrand		29,990	226,700
Revenues to City	242,480 to 280,480	29,750	272,230 to 310,230
Net Impact	45,770 to 93,770		16,170 to 83,530

The comparison shows a net positive impact for the East San Rafael development, including the two Seastrand housing sites. The key variable in establishing a positive impact in the overall comparison is the volume of retail sales in East San Rafael. With the open space at Seastrand South developed as private recreational space (and thus not maintained by the City), the two Seastrand sites are essentially self-supporting. (The cost of maintaining a public marshland preserve at Seastrand North does not appreciably affect the calculation.) Then, it may be said that a minimum volume of retail sales in East San Rafael to establish a break-even point is about 8 million per year. This volume of sales would bring in \$80,000 of tax revenues to the City and is an amount just sufficient, with the other expected tax revenues, to match the annual costs of municipal services of \$196,710. The location in East San Rafael of two additional auto dealerships (crossing, say, over \$6 million) would go a long way toward achieving this volume of sales.

Business License Fees: The San Rafael Municipal Code specifies the annual fees to be paid by each type of business, industry or other type of economic activity as follows:

^a Now that the Seastrand South site has been acquired by the City, the cost of maintenance will increase but not appreciably, since the services needed by the housing are no longer required.

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Note: ^a AV for land is based on 1975 rates per acre, by type of use. AV for buildings is based upon estimated construction cost of industrial buildings for the specific uses, less a depreciation allowance for average age of structures. It is assumed that new industrial structures cost from \$15 to \$20 per square foot, and that storage structures are somewhat less costly.

Land Use Type	Acreage	Land Buildings	AV per Acre ^a	Total AV/\$1,000's
Industrial	(100)	40	\$20,730	\$2,073
Retail, Retail Service	(18)	3.6	100,000	360
Utilities	(20)	4	9,550	191
Storage, disposal, etc.	(60)	4	7,530	452
Total			90,000	\$8,148

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TABLE E-12
ESTIMATE OF ASSESSED VALUATION
EAST SAN RAFAEL: 1990
(1976 Dollars)

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doing business in the City.

Business license fees were estimated for 1990, based on the average size of firms in Marin (Table E-2 p. VI-L-12) and numbers of employees expected to be working in East San Rafael at that time. Of the tax-paying entities, it was estimated that 66 firms, employing 2,875 persons would pay approximately \$21,000 in fees per year.

Sales Taxes: The State returns to San Rafael revenues from retail sales within the City. These revenues amount to one percent of the gross sales. The annual retail sales in ESR as of 1990 are roughly estimated to total from \$14 million to \$17.8 million. This volume of sales would return \$140,000 to \$178,000 per year to San Rafael.

Assessed Valuation of Land and Real Property in East San Rafael: Figures on assessed valuation (AV) of land and improvements in East San Rafael are important in the present study for these reasons:

1. the figures for July 1972 represent the base year data for calculation of incremental revenues of land within the Redevelopment Area;
2. the change in AV from 1972 to 1975 provides a clue to whether or not the annual rate of increase in AV will equal, or be more or less than the redevelopment "formula" rate of 3.8 percent per year.
3. the estimated market value of the land (four times the AV) may be somewhat useful in estimating costs of land acquisition, though the figures are by no means compelling.

Estimates have been made of total AV for 1972 and 1975 of the major land use areas of East San Rafael. Summaries are given in Tables E-12 and E-13 and greater detail is furnished in E-17. The figures must be regarded as estimates rather than as precise or authoritative figures, since it was necessary to apportion land on a fractional basis among the areas for the reason that in most cases the existing land parcel limits did not coincide with the boundaries of the use areas. The technique employed, for the most part, was one of visual judgment. The total acreages of the use areas, however, were measured by M & M from the RMD plan for ESR by means of a planimeter. The 1972 totals from the four tables; E-14, E-15 E-16 and E-17 do not represent the total ESR assessed valuation for their respective areas since improvements and personal property were not tabulated in

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those calculations. Assessed value of property, improvements and the various exemptions were omitted in the last four tables so as to obtain valuation data and rates of annual change on a land acreage basis only.

It was found desirable to break the approximately 281 (in 1972) acres of the industrial area into four units, as shown in Table E-16. This was done because the characteristics as well as AV's were quite different, and the use potentials of the areas appeared also to vary.

Housing: The proposed 34 housing units of the Seastrand North project, under the Redevelopment Agency allocation formula, would return funds to local government each year (after reaching full development) well beyond the cost of providing local governmental services to the area and to its residents.

The summaries of the revenue/cost impacts are shown in Tables E-18 and E-21. The unit costs and bases upon which the impacts were calculated are shown in Tables E-21 and E-24.

The net positive impact of the two projects is estimated to be \$190,140 per year by 1982. To be conservative, the governmental costs were taken on an average unit basis, and were then multiplied by the increment of the units to be needed by the proposed development. It is possible by this technique that the calculated impact will exceed the actual for the reason that marginal unit costs for small added tasks are not likely to equal overall average costs. In other words, an existing efficient organization can take on some added tasks without a major expansion. This latter point was confirmed in the field check made by Williams and Moline with police and fire officials, and it is particularly applicable in the case of Seastrand North.

Property Tax Returns to the Redevelopment Agency: The tax income retained by the Redevelopment Agency (henceforth, Agency) is to support the financial aspects of the redevelopment program of the Agency, in terms of long-term obligations and capital investments (tax increment bonds).

On property within the Redevelopment Area, the Agency receives revenue from the

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1 incremental assessed valuation (AV) beyond the base year (July 1, 1972) at the
2 full tax rate, with no pass-through to the county or to other districts or the
3 city. However, the Agency, by agreements of 1973 with two San Rafael school
4 districts and the Marin Community College District, transmits funds from its
5 incremental tax income, based upon the tax rates of the current year for
6 secured property, and the tax rates of the prior year for unsecured property.
7 There are various clauses in the agreements which relate to the manner in which
8 the inflation factor is to be calculated. All of these complex possibilities
9 and formulas need not be entered into the present analysis. The most probable
10 situation only is presented. The most probable distributions to the school
11 and college districts, based upon the most recent applicable rates, are illus-
12 trated in Tables E-20 and E-23.

13
14 A key factor in the formulas for distributing the funds to the school district
15 relates to whether or not the inflation rate of AV in the Redevelopment Area is
16 greater than 3.8 percent per year. The lesser of two rates of inflation of
17 assessed valuation of the total redevelopment area is to be employed in the
18 calculations: either 3.8 percent per year, or actual increase rate of the AV.
19 These rates do not apply to any single part of the area (e.g. the two Seastrand
20 projects) but rather only to the total redevelopment area, including that in
21 Central San Rafael. The calculation of Tables E-23 and E-22 which show net
22 positive impacts indicate that the proposed housing projects will not cause
23 a net loss to the Agency and City as of 1982, but of course do not solve the
24 problem of the amount of the annual net increase of AV in the total redevelopment
25 area.

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28 Payments to the School District by the Agency: Tables E-20 and E-23 show sche-
29 dules of payments to be made by the Agency to two school districts after matu-
30 ration of the housing projects in consonance with agreements effected between the
31 respective agencies in 1973^a. The schedules are based upon the factors described
32 earlier, and upon other parameters stated in the footnotes of the tables. The
33 general concept of the agreements is, of course, to return some of the incremental

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35 Note: ^aAssumes full development of the project, and the 1975 tax rate on secured
36 property, for illustrative purposes (and because that represents the best
data available).

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1 tax receipts of the Agency to the school districts so as to aid in their coping
2 with the impacts of future growth and development, and with the inflation of costs

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5 The costs to the schools for the added pupils from the two housing projects are
6 estimated in Tables E-22 and E-25. It is estimated that 80 percent of the added
7 pupils cost will be borne from local tax revenues.

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TABLE E-14
SUMMARY OF ASSESSED VALUATION
EAST SAN RAFAEL^a: 1972

Areas	Land	Improvements	Personal Property	Exemptions	Net Total
<u>1972 OPEN SPACE AND SUBMERGED LAND (W)</u>					
Seastrand North	\$ 14,281	---	---	---	\$ 14,281
Seastrand South	70,072	---	---	---	70,072
the rest	459,625	---	---	---	459,625
Subtotal	\$543,978	---	---	---	\$543,978
<u>1972 HOUSING, RETAIL, PARKING, INSTITUTIONAL, INDUSTRIAL</u>					
Seastrand North	81,281	33,125	---	2,250	112,156
Seastrand South	61,240	---	---	---	61,240
the rest	1,632,370	478,179	26,546	67	2,137,028
Subtotal	1,774,891	511,304	26,546	2,317	2,310,424
<u>1972 ALL LAND USES, TOTAL</u>					
Seastrand North	95,562	33,125	---	2,250	126,437
Seastrand South	131,312	---	---	---	131,312
the rest	2,091,995	478,179	26,546	67	2,596,653
Total	\$2,318,869	\$511,304	\$26,546	\$2,317	\$2,854,402

Source: Records of City Clerk, San Rafael

Notes:

^aExcludes proposed public marina and Spinnaker Point housing project.
These calculations reflect the projects, Seastrand North and South as originally planned and the purchase of Seastrand South as open space must be kept in mind.

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TABLE E-15
SUMMARY OF ASSESSED VALUATION
EAST SAN RAFAEL^a: 1975

Areas	Land	Improvements	Personal Property	Exemptions	Net Total
<u>1975 OPEN SPACE AND SUBMERGED LAND (W)</u>					
Seastrand North	\$ 14,281	---	---	---	\$ 14,281
Seastrand South	47,712	---	---	---	47,712
the rest	452,098	---	---	---	452,098
Subtotal	\$514,091	---	---	---	\$514,091
<u>1975 HOUSING, RETAIL, PARKING, INSTITUTIONAL, INDUSTRIAL</u>					
Seastrand North	83,843	41,625	---	5,250	120,218
Seastrand South	50,913	---	---	---	50,913
the rest	2,428,740	740,482	20,625	913	3,188,934
Subtotal	\$2,563,496	\$782,107	\$20,625	\$6,163	\$3,360,065
<u>1975 ALL LAND USES, TOTAL</u>					
Seastrand North	98,124	41,625	---	5,250	134,499
Seastrand South	98,625	---	---	---	98,625
the rest	2,880,838	740,482	20,625	913	3,641,032
Subtotal	\$3,077,587	\$782,107	\$20,625	\$6,163	\$3,874,156

Source: Records of City Clerk, San Rafael

Notes:

^aExcludes proposed public marina and Spinnaker Point housing project.
These calculations reflect the projects, Seastrand North and South as originally planned and the purchase of Seastrand South as open space must be kept in mind.

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TABLE E-16
FOUR INDUSTRIAL AREAS OF EAST SAN RAFAEL
AV AND MARKET VALUES
1972 and 1975
(excludes improvements)

Area	Total AV \$1,000's	Total Market Value, \$1,000's	No. of Acres	Average Per Acre AV, \$	Mkt Value, \$
<u>1972</u>					
1. East of 17, No.	502.1	2,008.3	68.32 ^a	7,349	29,396
2. East of 17, So.	385.1	1,540.4	102.97	3,740	14,960
3. West of 17, No.	524.2	2,096.8	85.24 ^a	6,150	24,599
4. West of 17, So.	51.75	207.0	24.84	2,083	8,333
Total 1972	\$1,463.15	\$5,852.5	281.37		
<u>1975</u>					
1. East of 17, No.	1,186.2	4,744.6	68.32 ^a	17,362	69,448
2. East of 17, So.	440.1	1,760.4	102.97	4,274	17,096
3. West of 17, No.	732.2	2,928.8	70.21 ^a	10,424	11,697
4. West of 17, So.	70.25	281.0	24.84	2,828	11,312
Total 1975	\$2,428.75	\$9,714.8	266.31		

Note:

^aThe figures for Zone 1 and Zone 3 exclude the acreage of publicly owned non-taxable lands. The acreage of these lands total 23.3 acres in 1972 and 38.2 acres in 1975 (G.G. Bridge - ten acres in 1972 and 25 acres in 1975; San Rafael Sanitation District, 13.2 acres).

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TABLE E-17
SELECTED AREAS IN EAST SAN RAFAEL
BASED ON THE FOMA PLAN
AV AND MARKET VALUES: 1972 and 1975
(excludes improvements)

Land-Use	Total AV, \$	Total Market Value, \$	No. of Acres	Average Per Acre AV, \$	Mkt Value, \$
<u>1972</u>					
1. retail	\$146,045	\$584,180	8.52	\$17,141	\$68,566
2. institutional	20,415	81,660	1.08	18,903	75,611
3. parking	2,790	11,160	6.8	410	1,641
4. water ^a	31,790	127,270	55.0	578	2,314
<u>1975</u>					
1. retail	\$147,448	\$589,792	8.52	\$17,306	\$69,224
2. institutional	20,415	81,660	1.08	18,903	75,611
3. parking	10,425	41,700	6.8	1,533	6,132
4. water ^a	36,740	147,015	55.0	668	2,673

Note:

^aRepresents the wetland area and drainage lagoon of the Holiday Magic property.

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TABLE E-18
SEASTRAND NORTH AND SEASTRAND SOUTH SITES
EAST SAN RAFAEL
AV AND MARKET VALUES: 1972 and 1975
(excludes improvements)

Area	Total AV, \$	Total Market Value, \$	No. of Acres	Average Per Acre AV, \$	Mkt Value, \$
1972					
Seastrand North	\$ 81,281	\$325,124	23.17	\$3,508	\$14,032
Seastrand South	61,240	244,960	9.04	6,774	27,097
Total	\$142,521	\$570,084	32.21		
1975					
Seastrand North	\$ 83,843	\$335,372	23.17	\$3,619	\$14,474
Seastrand South	50,913	203,652	9.04	5,632	22,528
Total	\$134,756	\$539,024	32.21		

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TABLE E-19
OPEN SPACE AREAS: EAST SAN RAFAEL
AV AND MARKET VALUES: 1972 and 1975
(excludes improvements)

Area	Total AV, \$	Total Market Value, \$	No. of Acres	Average Per Acre AV, \$	Mkt Value, \$
1972					
Shoreline Park ^a	\$ 40,965	\$163,860	38.48	\$1,065	\$4,258
Lagoon Park ^b	28,041	112,164	62.64	448	1,791
San Quentin Ridge	223,977	895,908	123.4	1,815	7,260
Seastrand North	14,281	57,124	8.0	1,785	7,141
Seastrand South ^c	60,072	240,288	16.4	3,663	14,652
Total	\$367,336	\$1,469,344	248.92		
1975					
Shoreline Park ^a	\$ 72,244	\$288,976	38.48	\$1,877	\$7,510
Lagoon Park ^b	64,249	256,996	62.64	1,026	4,103
San Quentin Ridge	185,040	740,160	123.4	1,499	5,998
Seastrand North	14,281	57,124	8.0	1,785	7,141
Seastrand South ^c	46,916	187,664	16.4	2,861	11,443
Total	\$382,730	\$1,530,920	248.92		

Notes:

^aIncluding the 4.2 acre "bulge" (disposal site).

^bWith further revisions in the Plan the commitment on total acreage for the Lagoon Park (Holiday Magic property) has now changed to approximately 55 acres with the remaining acreage to be developed as supportive commercial and industrial uses.

^cThe Seastrand South housing is no longer in the Plan and the area has been purchased as open space as mentioned earlier.

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TABLE E-20
SUMMARY OF SEASTRAND SOUTH PROJECT
REVENUE/COST IMPACT

Source	Annual Costs	Annual Revenues ^a	Net Impact Dollars
Municipal Services	\$46,120		
Property tax to Redevelopment Agency, @ \$10.311/			
\$100 less payments to schools and colleges		\$69,780	
Payment by Agency to elementary school			
@ \$1.773/\$100 ^b		23,290	
Payment by Agency to high school			
@ \$2.172/\$100 ^b		28,540	
Payment by Agency to Community College @ \$1.053/			
\$100 plus a fixed payment, prorated (\$30)		13,860	
State subventions @ \$20 pop. (new residents only) ^c		1,850	
School services, full public cost	23,440		
Totals	\$69,560	\$137,320	\$67,760

Notes:
^aIncremental assessed valuation (AV) equals the estimated AV when the project is mature less the 1972 AV of \$61,240.
^bThese represent rates set in the current tax year.
^cThis represents the average revenue per capita received from the State in "in lieu" taxes, gasoline taxes, the 2106 program, etc. Assumes that residents of 33 of the 50 dwellings move to San Rafael from elsewhere. Thus, $33 \times 2.8 \times \$20 = \$1,848$.

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IV-A1-36

TABLE E-21
SEASTRAND SOUTH
CITY COST IMPACT CALCULATIONS

Item	Type of Impact	Parameter of Increment	Current Unit Costs ^a	Physical Increment of Proposal	Yearly Added Costs of Pro-Posed Developmt.
Executive and Admin. Services	slight increase	dwelling units	\$1,610,400 \$14,500 dws = \$111/du	50 dws	\$ 5,550
City Fire	increase	population	\$32.47/pop.	140 pop.	4,550
City Police	increase	road length	\$601,000 150 mi. = \$4,007/mi.	0.0 mi. ^c	3,000
Streets Maint. ^b	increase	acres	\$2,000/acre	16.4 acres	32,800
Parks	slight increase	population	\$69,000 45,000 = \$1.55/pop.	140 pop.	220
Public works admin.	slight increase	population	\$69,000 45,000 = \$1.55/pop.	140 pop.	220
Building Inspection	slight increase	population	\$69,000 45,000 = \$1.55/pop.	140 pop.	220
Total					\$46,120

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Notes:
^aOperating or maintenance cost data are taken from the budget report of the City of San Rafael: Program of Municipal Services, 1975-76.
^bIncludes street maintenance and cleaning, street painting, storm and sanitary sewers, and street tree and parkway maintenance.
^cPrivate streets per ROMA's East San Rafael Plan. Maintenance costs on the adjacent existing city streets which will provide maintenance, plus incremental maintenance costs on the principal access to the project.

TABLE E-22
SEASTRAND SOUTH
SCHOOLS COST IMPACT CALCULATIONS

Item	Type of Impact	Parameter of Increment	Current Unit Costs	Added No. of Pupils	Yearly Added Cost to School Dist. ^a	Yearly Added Cost to Government
Elementary	increase	pupils	\$1,337	11	\$11,770	\$14,710
High School	increase	pupils	\$1,455	6	6,980	8,730
Total					\$18,750	\$23,440

Note: ^aAssumes about 80% of pupil cost is borne by property taxes. This estimate was made by an official of San Rafael schools who was contacted by Williams and Moline.

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TABLE E-23
SUMMARY OF SEASTRAND NORTH PROJECT
REVENUE/COST IMPACT

Source	Annual Costs	Annual Revenues ^a	Net Impact, Dollars
Municipal Services	\$13,230	----	----
Property tax to Redevelopment Agency, @ \$10.31/	----	\$ 79,000	----
\$100 less payments to schools and colleges	----		
Payment by Agency to elementary schools	----		
@ \$1.773/\$100 ^b			
Payment by Agency to high school	----	26,380	
@ \$2.172/\$100 ^b			
Payment by Agency to Community College @ \$1.053/	----	32,310	
\$100 ^b plus a fixed payment, prorated (\$50)	----		
State subventions @ \$20 pop. (new residents only) ^c	----	15,720	
School services, full public cost	19,310	1,510	----
Totals	\$32,540	\$154,920	\$122,380

Notes: ^aIncremental assessed valuation (AV) equals the estimated AV when the project is mature less the 1972 AV. These represent rates set in the current tax year. ^bThis represents the average revenue per capita received from the State in "in lieu" taxes, gasoline taxes, the 2106 program, etc. Assumes that resident of 27 of the 40 dwellings move to San Rafael from elsewhere. Thus, $27 \times 2.8 \times \$20 = \$1,512$.

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Item	Type of Impact	Parameter of Increment	Current Unit Costs	Added No. of Pupils	Yearly Added Costs to School Dist. ^a	Yearly Added Costs to Government
Elementary	increase	pupils	\$1,337	9	\$ 9,620	\$12,030
High School	increase	pupils	1,455	5	5,820	7,280
Total					\$15,440	\$19,310

Note: ^aAssumes about 80% of pupil cost is borne by property taxes. This estimate was made by an official of the San Rafael schools who was contacted by Williams and Moline.

TABLE E-25
SEASTRAND NORTH
SCHOOLS COST IMPACT CALCULATIONS

Item	Type of Impact	Parameter of Increment	Current Unit Costs ^a	Physical Increment of Proposal	Yearly Added Costs of Proposed Develop.
Executive and Admin. Services	slight	dwelling units	\$1,610,400 14,500 dus = \$111/du	40 dus	\$ 4,440
City Fire	increase	population	\$32.47/pop.	112 pop	3,640
City Police	increase	road length	\$601,000 150 mi. = \$4,007/mi	1.1 mi	4,410
Streets Main. ^b	increase	acres	\$70/acre	8.0 acres	560
Parks	slight	population	\$69,000 45,000 = \$1.55/pop.	112 pop.	180
Building inspection	increase	population	\$69,000 45,000 = \$1.55/pop.	112 pop.	180
Total					\$13,230

Notes: ^aOperating or maintenance cost data are taken from the budget report of the City of San Rafael: Program of Municipal Services, 1975-76.
^bIncludes street maintenance and cleaning, street painting, storm and sanitary sewers, and street tree and parkway maintenance.

TABLE E-24
SEASTRAND NORTH
CITY COST IMPACT CALCULATIONS

ORGANIZATIONS AND INDIVIDUALS CONTACTED (E)

City of San Rafael

City Manager - William J. Bietser

Redevelopment Agency

J. Stanley Ott, Assistant Executive Director
Lynn Sedway, Redevelopment Assistant
Ralph Neal (no longer with Agency)

Planning Department

Herbert Hotchner, Director
Barbara Schoetz, Senior Planner
Matthew Guthrie, Associate Planner

Office of the Treasurer

John Averett, Treasurer
Jane Hansen

Office of the City Clerk

Department of Public Works

Ely Calilouette, Jr., Director
David Bernardi, Plan Development Coordinator
Richard R.P. Endy, Public Works Superintendent
George Gerth, Traffic Engineer
Jack K. Coates, Chief Building Inspector

Fire Department

Chief Marcucci

Police Department

Captain Henry Ingwersen

Parks Department

Scott Tilden, Park Superintendent

City Schools - Administration

John N. Scroggin, Assistant Superintendent

Marin County

Assessor's Office

Jim Dal Bon, Appraiser III

Planning Department

Kathleen Ohlson, Environmental Planner

Parks and Recreation Department

Pierre Joske, General Manager, Open Space Division
David Hanson, Open Space Planner

Economic Impacts
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Marin Municipal Water District

Engineering Department

Marin County Chamber of Commerce and Visitors Bureau

Francis Fogarty, Manager

Greater San Rafael Chamber of Commerce

Richard P. Rush, Exec. Vice President and General Manager

State Employment Development Department, Division Employment Data and Research

Tom Moore, Research Analyst

San Rafael Sanitation District

Dan Nuebell, District Administrator-Engineer

San Quentin Disposal Site

Bruce Bernhard, Owner-Manager

William Hoey, Leasing Agent

Kegan and Coppin, Industrial Realtors, Santa Rosa

Al Coppin

Grubb and Ellis, Realtors

George Wagner, Industrial Department (Northgate Industrial Park)

Dan Coleman Consortium

Dan Coleman, President
Robert Williams, President, Coleman-Williams
Judy Waller, President, Coleman-Walker

Keyser Marston Associates

Kate Funk, Economist

ROMA Consultants

Robert C. Mountjoy, AIA

Economic Impacts
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- E-1 Keyser Marston Associates, Central San Rafael Redevelopment Plan Market Analysis, October, 1974.
- E-2 City of San Rafael, Program of Municipal Services 1975-1976, May, 1975.
- E-3 Duncan & Jones & Cooper & Clark, San Rafael General Plan, 1974.
- E-4 Duncan & Jones & Cooper & Clark, San Rafael General Plan Appendix, April, 1975.
- E-5 Marin County Planning Department, Summary Marin Countywide Plan, 1973.
- E-6 Marin County Planning Department, The Marin Countywide Plan, 1973, (Revision).
- E-7 Central San Rafael Redevelopment Plan. Urban Design and Development Plan: East San Rafael. Final Report and Research and Analysis Report, March 23, 1976. Prepared for San Rafael Redevelopment Agency by ROMA and associated consultants.
- E-8 Area Manpower Review. Marin County, Fiscal Year 1976-1977. April, 1976. State Employment Development Department, Division of Employment Data and Research.
- E-9 Standard Industrial Survey: Summary Report. February, 1975. Marin County Chamber of Commerce and Visitors Bureau.
- E-10 Hahn Shopping Center Permit Application (Corte Madera). Draft EIS. Prepared by U.S. Army Engineer District, San Francisco. January, 1974.
- E-11 San Quentin Peninsula Development Impact Report, City of Larkspur, 1975.

Economic Impacts
IV-44

V. RELATIONSHIP TO OTHER PROJECTS AND PUBLIC PLANS

- The East San Rafael Area is a subarea of the Central San Rafael Redevelopment Plan (CSRRP) Area. It occupies almost half of the CSRRP area.
- Fewer, less dense, and mostly new uses are proposed in this large almost vacant area of the CSRRP. Sound uses and structures will be retained but for the most part new planning and building is indicated.
- California's Community Redevelopment Law: The purposes of redevelopment deal with improving or rehabilitating blighted areas. In order to accomplish this task this law permits the assemblage of parcels that are too small or improperly designed for desired use. While the law does not require the use of this tool, it seems that several opportunities for benefitting from its use are appropriate in East San Rafael.
- The law also specifically is intended to enable communities to improve their supply of low and moderate income housing. Yet this plan if implemented will be adding two high-cost housing developments and no low or moderate cost housing to the City's stock. See references in "Spinnaker Point EIR" page V-3.
- The Marin Countywide Plan: Goals in the Countywide Plan which pertain to the East San Rafael Plan Area follow:
 - Concentrate commercial . . . development in high intensity, transit-accessible nodes, rather than allowing sprawl or continuous strip development along freeway corridors. (p. 1-4).
 - Closely regulate development in areas prone to fire, flood and landslide. (p. 1-4).
 - Develop these new routes: The San Rafael Waterfront Parkway . . . but only when the designated open space through which they pass has been permanently secured.

Relationship
V-1

1 Use transit for recreational travel, in a system producing mini-
2 mum environmental damage. (p. 1-5).

3
4 Develop a system of bicycle, hiking, and riding trails connecting
5 with open space, residential areas, and activity centers. (p. 1-6).

6
7 Require public trail access through adjacent private developments
8 to all parks, public open spaces and coastlines. (p. 1-7).

9 Among the policies of the Countywide Plan, the following are pertinent:

10
11 Buffer zones 1,000 yards inland from the shores of the ocean and
12 bays are required.

13
14 Watershed zones are required to conform to standards for water
15 quality protection in addition to other environmental criteria.

16 In the portion of the Marin Countywide Plan which discusses subarea plans,
17 major issues in the San Rafael Basin are said to include the following
18 which focus on the East San Rafael Plan Area:

19 Preserving open space on ridges and the bayshore . . .

20
21 Maintaining a supply of relatively inexpensive commercial and
22 industrial space to help new businesses get started.

23
24 Improving the appearance of the industrial area along Route 101.

25
26 The East San Rafael Plan appears to conform to the objectives and policies
27 of the Marin Countywide Plan except for the 1,000 yard setback required
28 along the bayfront. However, the 1,000 yard setback is meant to emphasize
29 the need for conservation and special studies along the bayshore and doesn't
30 preclude all forms of development.* Therefore, the water review and open
31 space review required by the City of San Rafael in this area of the Plan
32 is sufficient consideration of the bayfront lands.

33
34 * Marge Macris, Marin County Planning Department.

35 Relationship
36 V-2

1 The proposed San Rafael waterfront parkway has, since the adoption of the
2 Countywide Plan, given way to the more ecologically suitable plans for a
3 Shoreline Park and open space in which the use of trails rather than roads
4 will successfully prevent automobile intrusion and related environmental
5 disruption and destruction.

6
7 The San Rafael General Plan

8
9 The San Rafael General Plan designates special review areas where certain
10 uses of the land are recognized as having special needs and diverse impacts.
11 In the East San Rafael Plan Area the following review areas are specified:

- 12 1) Water-oriented Review Area - a 500 - 1,000 foot strip along the
13 bayfront and on both sides of the San Rafael Canal.
14 2) Open Space and Residential Review Area - The Spinnaker Site and
15 East San Rafael north of Bellam Boulevard and north-east of Larkspur
16 Street. This Area also includes the hillside and ridge west of
17 Highway 17.

- 18 3) Business and Industrial Review Area - both sides of Highway 17
19 extending to and including some of the western hillside slopes.

20
21 With regard to water-oriented open space which would include review areas
22 1) and 2) above, recreational and public uses are to be developed. The
23 potential for dramatic and beneficial use of bay frontage is recommended as
24 follows:

25 . . . to create a magnificent new water-oriented public recreation
26 and open space resource for the community. Waterfront promenades,
27 playing fields, possibly a boat harbor and other open uses would mini-
28 mize the risk from seismic hazards and differential settlement, and
29 would at last establish San Rafael's rightful relationship to the Bay
30 and its shoreline. This area could be used to enhance San Rafael's
31 character as a fascinating place which has captured full public bene-
32 fit from its physiographic asset -- its ridgelines and shorelines.
(R-7, p. 20).

33 Business and Industrial Review Areas recommendations for the industrial area
34 on either side of Highway 17 focus on the need to improve its visual appear-
35 ance and the circulation system, and to replace some existing structures with
36 those of more efficient design.

General Plan
V-3

1 Relationship of the Proposed East San Rafael Redevelopment Plan to the
2 Reviewing Agencies

3 The East San Rafael Redevelopment Plan will be evaluated by the U.S. Army Corps
4 of Engineers, the Bay Conservation and Development Commission (BCDC), the San
5 Francisco Bay Regional Water Quality Control Board, and the California State
6 Department of Navigation and Ocean Development (DNOD). These agencies
7 will issue permits to fill, dredge and/or develop the property within
8 their jurisdictions as planned or specify changes necessary before
9 permits may be granted. In the case of DNOD, funds for the Marina rather than
10 a permit are sought.

11
12 The U.S. Army Corps of Engineers jurisdiction extends over the San
13 Francisco Bay and up to the mean high or higher water mark and it
14 includes all wetlands. Areas filled prior to January, 1972, and which
15 are not wetlands, are not within its jurisdiction. Therefore, the proposed
16 Marina, the Seastrand sites and the proposed Shoreline Park area planned for
17 partially wetland sites, will be closely evaluated by this agency.

18
19 BCDC jurisdiction extends 100 feet inland from the highest tide and
20 includes marshlands subject to tidal action up to five feet above mean
21 sea level. Since the entire area is surrounded by a levee which is three to
22 five feet higher than the highest recorded tide, 6.29 feet, BCDC's jurisdiction
23 would extend 100 feet inland from the highest tide mark on the face of the levee.

24 BCDC is principally concerned with providing as much access as possible to the
25 Bay and with the attractiveness of shoreline development. BCDC has the authority
26 to reserve areas for future ports, airports, recreation, special water-related
27 industries, and for wildlife. The San Francisco Bay Plan, which outlines BCDC's
28 objectives and shows how they can be realized, has been adhered to in the plan for
29 East San Rafael. Scenic views have been enhanced, the area of the Bay expanded, and
30 public access provided for. Regarding the cost of housing to be built in the re-
31 sidential areas; however, the East San Rafael Redevelopment Plan is contra-indicated
32 by the following policy of the Bay Plan:

33 Whenever feasible high density should be encouraged to provide the advantages
34 of waterfront housing to larger numbers of people (p-22, p. 28).

35
36
Reviewing Agencies
V-4

1 BCDC's concern for public use of shoreline areas is mirrored in policies which
2 would require shoreline developments to include public launching ramps or facil-
3 ities and fishing docks. While the East San Rafael Plan has not selected a
4 site for a launching ramp, the City is in the process of looking for a suitable
5 site; fishing docks are not shown on the Plan but could easily be constructed
6 in several areas.

7
8 The East San Rafael Redevelopment Plan does provide continuous 100 foot band
9 of public access along the Bay frontage when and where it is possible, along
10 with continuous public access around the Marina.

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Reviewing Agencies
V-5

Geographic and Topographic Conditions

Existing Conditions: The project area is located in southeastern San Rafael (see Figures 1 and 2). Most of the project area consists of the San Rafael Baylands and a portion of the San Rafael Canal area as designated by the San Rafael General Plan (Reference, GT-1, pp. 18-20, and Map 5). For discussion purposes here, the project can be divided into four distinct areas.

The southwestern area consists of moderately steep hillside which lies south of State Route 17 and above the former baylands. This area rises to and includes most of the crest of the hill system which extends southeastward to Point San Quentin out of the project area. The elevation of the hills ranges from just under 100 feet at the gap through which Sir Francis Drake Boulevard crosses to over 360 feet above sea level at a point about midway northeastward toward U.S. Route 101. This area is undeveloped.

The northern area lies north of San Rafael Canal and consists entirely of the proposed "Seastrand" development. This area includes both filled and unfilled baylands and a moderately steep hillside rising to over 100 feet in elevation. This area is more or less bordered on the west by Sea Way, on the north by San Pedro Road, on the east by Bellevue Avenue and a part of Bay Way, and on the south by the San Rafael Canal.

The remaining portions of the study area (approximately 90 percent of it) consist of marshlands and tideland which have mostly been altered by diking and filling. A differentiation may be made between the area west and inboard of the 1853 shoreline (see Figure 2) and the area east and outboard of the 1853 shoreline. Most of the inboard area has been filled and basic land development improvements have been made whereas only portions of the outboard area have reached that stage of development. The proposed Pickleweed Park area lies inboard and the proposed "Spinnaker Point" and the associated proposed marina lie outboard. The latter two developments are the subject of recent E.I.R.'s (Reference GT-2). The baylands are crossed by State Route 17 which connects just west of the project area with U.S. Route 101, the major

Geog/Topo
VI-A-1

north-south highway, and just east of the project with the Richmond-San Rafael Bridge across San Francisco Bay. The filled baylands must have an elevation of at least 5 feet above sea level to meet the requirements of the City of San Rafael. A high tension power line extending north-south across the entire project is shown on References GT-3, GT-4, and GT-5 (Map 20). It should be noted that the topography is shifted from its true position on all the maps in References GT-5 and GT-6. It is shown correctly on Figures 2 and 3 of this report.

Adverse Impacts: The existing dikes and land fills have created the major topographic changes. The proposed land uses will create no significant adverse impacts except for marina development. Dredging, piling, filling and related features for such development would alter the shoreline configuration and water depths. The specific effects of these activities and any mitigations can not be determined at this time as there are no detailed plans. The proposed changes of water areas are the preservation of approximately 55 acres of the Holiday Magic property, the retention of three ponding areas and the preservation of two of the drainage lagoons south of Spinnaker Point.

Beneficial Impacts: In addition to the proposed increase in water surface area, the existing unique landforms (levees and lagoons) and the wooded slopes of the southwest area which will be maintained represent beneficial impacts. Access to the bay shoreline will be greatly improved and there will be new water-oriented facilities. Access to and between the open spaces is proposed and will be a beneficial impact.

Mitigation Measures: Mitigation measures for the adverse impacts of dredging, filling and piling which are now included in the Plan encompass landscaping portions of the Marina shore with pickleweed opening Seastrand Marsh to tidal influence, improving the marsh adjacent to Pickleweed Park and retain approximately 55 acres of the Holiday Magic Site south of Spinnaker as wetlands with improvements to this area in the future. Further mitigating measures are listed in an Open Space and Wildlife Mitigation Plan developed by the City of San Rafael.

Geog/Topo
VI-A-2

BIBLIOGRAPHY (GT)

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- GT-3 U.S. Geological Survey, San Rafael 7 1/2 Minute Topographic Quadrangle, 1954, (photorevised 1968).
- GT-4 U.S. Geological Survey, San Quentin 7 1/2 Minute Topographic Quadrangle, 1959 (photorevised 1968).
- GT-5 Rockrise Odematt Mountjoy Amis, et al., 1974, Research & Analysis Report, Central San Rafael Redevelopment Plan for San Rafael Redevelopment Agency, October, 1974.
- GT-6 Rockrise Odematt Mountjoy Amis, 1976, Final Report, Urban Design and Development Plan, East San Rafael for San Rafael Redevelopment Agency, March 23, 1976.

Geologic and Soil Conditions

Existing Conditions:

GEOLOGY

San Rafael lies at the southern end of the Northern Coast Range geomorphic province. The City is underlain by rocks believed to be 70 to 120 million years old which are comprised of graywacke, sandstone, shale, chert, volcanic rocks and serpentine (GS-1). In the East San Rafael area, the rocks are categorized geologically as the Franciscan Formation and Cretaceous sedimentary rocks (GS-2). Figure 4 illustrates the geology of the area.

During Pleistocene time (from 2 million to 10,000 years ago), the bedrock was weathered and eroded into hills and valleys. During that time the level of the sea lowered several times as much as several hundred feet so that the effects of the erosion extend below where sea level exists today. Before the rise in sea level, which followed, alluvial and/or residual soils developed on the bedrock to varying thicknesses. These soils exist today buried beneath deposits resulting from the last rise in the sea which formed San Francisco Bay (see Figure 6). As the shoreline rose to its present level, deposits of clay, silt, some peat, and occasional sand and gravel lenses developed along the Bay margin and beneath the Bay. These deposits are known as Bay Mud and are predominantly soft, plastic, generally unconsolidated silts or clays with a very high water content.

The thickness of Bay Mud in the San Rafael area is interpreted from boring data and is shown on Figure 5. The relationships of the bedrock, alluvial and/or residual soil, Bay Mud and overlying fill are depicted in the exaggerated vertical scale, generalized cross sections of Figure 6.

SOILS

The East San Rafael area largely includes a portion of San Francisco Bay tidelands which were diked off from the Bay and developed in several phases of filling. Figure 8 shows the Bay shoreline as it existed in 1853 and

Geol/Soil
VI-B-1

Geog/Topo
VI-A-3

the extent of historic marshlands. Most of the land in the project area was brought to its present condition since about 1950. Although not all of the old marshland has been filled, most of it has been diked off from the tidal action of the Bay as has a large area of former tidal land. (See Figure 8).

The dikes and fills which were placed since 1950 have been constructed using modern methods. Soil engineering report information dating from the late 1950's is on file with the City of San Rafael. The data indicate that from three to eight feet of fill is the prevailing thickness. In places, such as the sanitary landfill site, the thickness of fill is greater. Along the landward margins of the fill land, the thickness grades to zero. The specific conditions of a particular site (thickness and nature of the fill and underlying materials) are critical to adequate design of improvements on filled lands.

The site can be divided into four primary areas (as described in Geography/Typography). The southwestern portion of the site consists of a moderately steep hillside which is underlain by bedrock.

The remaining portion of the site (approximately 90 percent of the entire study area) consists of the flatlying former marshland and tidal areas underlain by Bay Mud materials. This area is further subdivided into the area west of the 1853 shoreline, the areas east of the 1853 shoreline, and the area north of San Rafael Canal which also includes some bedrock hillside.

(1) Southwestern Area

Soils in the southwestern hilly portion of the project consist primarily of weathered residual soils (generally only a few feet in thickness), colluvium consisting of loose rock, and soil deposits of variable thickness. Colluvium typically consists of sandy clays of low plasticity with variable amounts of intermixed angular rock fragments. The landslide deposits are similar in character to the colluvium (see Figure 4).

(2) West of the 1853 Shoreline

This area consists of the former marshland area between the southwestern area and the 1853 shoreline. The majority of this area was filled since the 1950's. The fills are generally two to eight feet in thickness and are heterogeneous in nature. They were

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VI-8-2

generally not placed under close engineering control. Underlying the fills are the former marsh deposits (commonly termed Bay Mud) ranging in thickness from zero along the contact with the southwest area to a maximum of over 80 feet in a tongue extending inland from the 1853 shoreline (see Figure 5). Bay Mud consists primarily of soft highly compressible silts and clays of marine origin. Prior to filling, sloughs meandered through the area (see Figure 8).

Little specific information is available regarding the materials underlying the Bay Mud, however, they are usually underlain by limited thicknesses of alluvial materials (probably less than 50 feet) and bedrock materials similar to those present in the southwest area. (See Figure 6). In some locations, the Bay Mud is underlain by an overconsolidated marine deposit commonly termed Older Bay Mud. The Older Bay Mud is similar to the Bay Mud but has higher strength and lower compressibility properties than the Bay Mud.

(3) Area East of the 1853 Shoreline

The Bay Mud thickness in the area east of the 1853 shoreline is generally on the order of 60 to 80 feet with the thickness decreasing to zero where the area abuts hillside bedrock areas (see Figure 6). The Bay Mud materials are underlain by limited thicknesses (probably less than 50 feet) of alluvial materials and/or Older Bay Mud. Underlying these deposits, and in some areas the Bay Mud directly, are bedrock materials similar to those in the southwestern area.

For much of the area east of the 1853 shoreline, the Bay Mud is overlain by fill materials, some of which were placed under engineering inspection. There are no fill materials present in some portions of this area as delineated on Figure 5. The southern portion of the area has been utilized for a number of years as a sanitary landfill site. Materials placed in the sanitary landfill consist of residential and commercial refuse as well as debris from various construction operations.

A perimeter levee system along the eastern and northern boundaries separates the former tideland areas from San Francisco Bay with some interior levees also present. The levees are believed to have been constructed, for the most part, of Bay Mud materials although a variety of other materials have been used. Little information is available regarding the construction techniques and materials used in the levees. In several areas levees are known to have been constructed of Bay Mud with a surface capping of rock fill.

There is some existing slope protection on the outboard side of the perimeter levee system with various bulkhead systems present along San Rafael Canal. Slope protection along the eastern boundary consists of assorted revetment. The overall condition of the existing slope protection is uncertain.

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VI-8-3

(4) Area North of Canal

This area consists of the small portion of the overall study area located north of San Rafael Canal. The northeastern part of this area is a hilly area where shallow residual soils and colluvium overlie bedrock materials. The remaining lowland part consists of former tidelands which have been diked off from San Francisco Bay. In this area Bay Mud ranges from zero to a maximum thickness of 20 feet (see Figure 5).

GROUNDWATER

In the bedrock areas of the East San Rafael Redevelopment Area, the depth to groundwater is variable but normally is at a depth which does not influence site development. However, in the filled land areas, the groundwater conditions are important. Because the Bay Mud materials underlying the fill generally have a low permeability, a saturated soil condition may exist above sea level. Any elevation below sea level can be expected to be below the water table. These conditions are particularly important from a standpoint of seismic hazards and increased construction costs when working below the water table. The quality of the groundwater in the project area is not known as there are no known active wells in the project area.

SEISMICITY

The site lies in a seismically active area which is subject to earthquakes from several active faults (see Figure 7). The closest known active fault is the Hayward Fault which lies approximately six miles eastward of the site. The Rogers Creek Fault to the north may be a continuation of the Hayward Fault. The San Andreas Fault, which lies about ten miles westward, is considered capable of generating the most damaging earthquake for the study area. Figure 7 (based on data from References GS-4 and GS-5) indicates the intensity of ground shaking known to have occurred in the period 1810 to 1961. The site has experienced eleven to fifteen earthquakes producing intensities VI, VII and VIII or greater (Modified Mercalli Scale) since 1810. In terms of earthquake magnitude, a statistical determination has been made for the seismic events that might occur in the next 150 years (reference GS-1, p. A-57).

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VI-B-4

Based upon limited geotechnical data, San Rafael has been divided into six zones (GS-1, p. A-51-54). Note that these are not the four Geoseismic Hazard Zones of Reference GS-6. The project area includes all six zones for which computations have been made for critical factors (GS-1, p. A-53). The maximum ground acceleration ranges from 0.35g to 0.75g and the predominant soil deposit period ranges from 0.15 to 2.0 seconds.

The seismic hazards in the San Rafael area are discussed in detail in reference GS-1 (pp. A-49 to A-61) and summarized in reference GS-6 (pp. 13 and 14 and Map 3, Potential Geo-seismic Hazard Zones Map). Of these hazards, the site is not expected to be ruptured by surface faulting or affected by seiches. However, liquefaction, lateral spreading, differential settlement and earth lurching are potential hazards (reference GS-1). Also, there is a risk of tsunami at the site which has been evaluated (reference GS-7) and a tsunami runup of 2.25 feet has been calculated.

Adverse Impacts:

SLOPE STABILITY

Hillside slopes are subject to natural processes of weathering and erosion. One of the consequences is instability of the slope either from a soil or bedrock standpoint. A brief but thorough discussion of the processes and consequences is given in GS-1 (pp. A-62 to A-65). Using a set of criteria which were applied on a reconnaissance basis, San Rafael has been zoned for slope stability (GS-1, pp. A-65 to A-68). These zones have been adhered to in the East San Rafael Plan (See also GS-6, p. 14, Map 4).

SETTLEMENT

The hillside areas will not be subject to significant settlement. The flat portions of the site, consisting of former marshland and tideland areas, will be subject to very significant settlements because the underlying Bay Mud is very compressible.

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SEISMIC EFFECTS

Reference GS-6 presents general information regarding seismic effects on the study area. Possible seismic effects include ground shaking, liquefaction, lateral spreading, differential settlement, earth lurching and tsunamis (GS-1, pp. A-49 to A-61).

Adverse Impacts: SPECIFIC AREAS

The southwestern area has been proposed to remain in open space entirely in the hills above the flat, filled land. Map 2A of GS-8 differs slightly from this description because of the inaccuracy already mentioned.

A number of places have been identified on the hill slopes where small landslides or soil instability have occurred (GS-3 shows more locations than GS-1). It is likely that future slope instability will occur unless corrective measures are taken. If development were to be proposed, the costs of investigation and remedial measures must be assumed. Also, development would raise the potential for erosion and sedimentation. Reference GS-1 indicates a maximum ground acceleration of 0.45g during a nearby major earthquake and it has been assigned to Geo-seismic Hazard Zone 1 (Stable).

The proposed land use for the area west of the 1853 shoreline is industrial bordering Highway 17, including all of the filled land inboard of the historical shoreline. A small area of retail use is proposed between State Route 17 and U.S. Route 101 adjacent to Bellam Boulevard where similar uses now exist. An open space corridor is proposed along the south side of State Route 17. Open space identified in the northeast part of this subarea (see Figure 3) consists of an existing school site and a proposed park. Pickleweed Park is to be a community and conservation open space; west of the marina is existing housing. Only that limited portion of this area along San Rafael Canal need be considered to have potential slope instability problems. The placement of additional fill and/or buildings will impose additional loads on the slope along San Rafael Canal. The entire area is still undergoing settle-

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ment as a result of the fill and buildings already in place. The settlement anticipated as a result of these present loads is estimated to be less than two feet. Placement of additional fill and/or buildings will result in additional settlements. The bulk of such settlements is likely to develop over the next ten to 40 years. GS-1 indicates maximum ground accelerations of 0.6g to 0.35g with predominant soil deposit period of 0.8 to 2.0 seconds. This area is classified by GS-6 as Geo-seismic Hazard Zones 2, 3 and 4. (Zone 4 responds most poorly; Zone 1 responds most favorably).

The area east of the 1853 shoreline, lying bayward of the historical shoreline, consists mostly of diked and filled or diked and unfilled former tidelands. The northernmost part of this area presently is undiked tideland and marshland which is proposed to remain in its natural state. The bayshore perimeter is proposed as open space. The proposed Spinnaker Point housing development and the proposed City Marina and related retail development are included in the land use plan. South of Bellam Boulevard parking for access to the open space areas and a water body which would have tidal connection to the Bay is proposed. The remaining portion of this area is proposed as industrial use.

That portion of the area east of the 1853 shoreline along San Rafael Canal, San Francisco Bay and the proposed Marina have potential slope instability problems. The placement of additional fill and/or buildings will impose additional loads on these slopes. The entire area is still undergoing settlement as a result of the fill and buildings already in place. The settlement anticipated as a result of these present loads is estimated to be less than 2 feet. Placement of additional fill and/or buildings will result in additional settlements. The bulk of such settlement is likely to develop over the next 20 to 50 years.

The southern portion of this area has been utilized as a sanitary landfill site. The solid waste used in the landfill will slowly decompose with time resulting in additional settlement in this area. This additional settlement can be as much as several feet, depending on a number of variables which include the thickness, composition and degree of compaction of the solid wastes. The additional settlement may impose limitations on the types and sizes of buildings that should be constructed in this area.

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Reference GS-1 indicates maximum ground accelerations of 0.35g to 0.60g with predominant soil deposit periods of 0.8 to 2.0 seconds. This area is classified by GS-6 as Geo-seismic Hazard Zones 2 and 4.

The area north of the San Rafael Canal is proposed as housing, and open space/conservation.

The northeastern part of the area is hillside with a potential for slope instability for which the East San Rafael Redevelopment Plan has proposed mitigating measures. Reference GS-1 indicates maximum ground accelerations from 0.45g to as great as 0.75g and predominant soil deposit periods from 0.15 to 0.40 seconds. It is classified Geo-seismic Hazard Zone 1 by GS-6.

The flatlying portion of this area is diked bayland which has largely been left unfilled. The placement of fill and/or buildings will impose additional loads on the levee slopes. This would also result in settlement which would occur for a period of ten to 40 years. Reference GS-1 indicates maximum ground acceleration of 0.60g and predominant soil deposit period of 0.8 seconds. It is classified by GS-6 as Geo-seismic Hazard Zone 4.

Beneficial Impacts: The designation of open space lands both on filled and unfilled areas is beneficial as is that designation for hillside areas with slope instability.

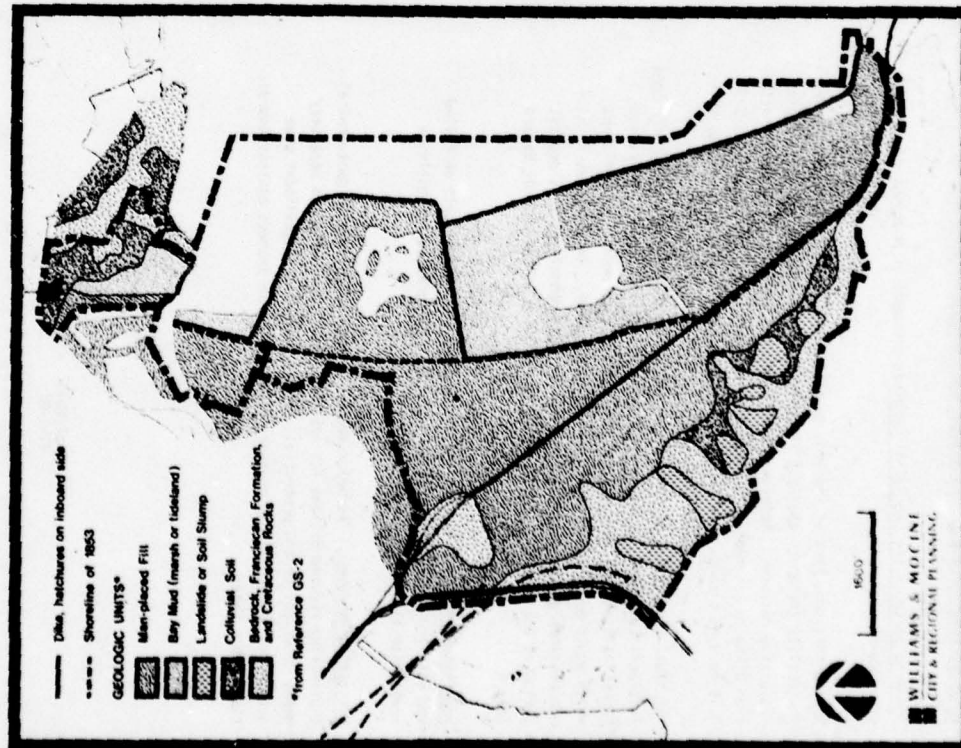
Mitigation Measures: The major measures would be to require geotechnical engineering recommendations for any development, to undertake necessary means to stabilize and protect all slopes subject to significant wave action and to maintain an adequate levee height to protect against inundation by bay water.

Geol/Soil
VI-B-8

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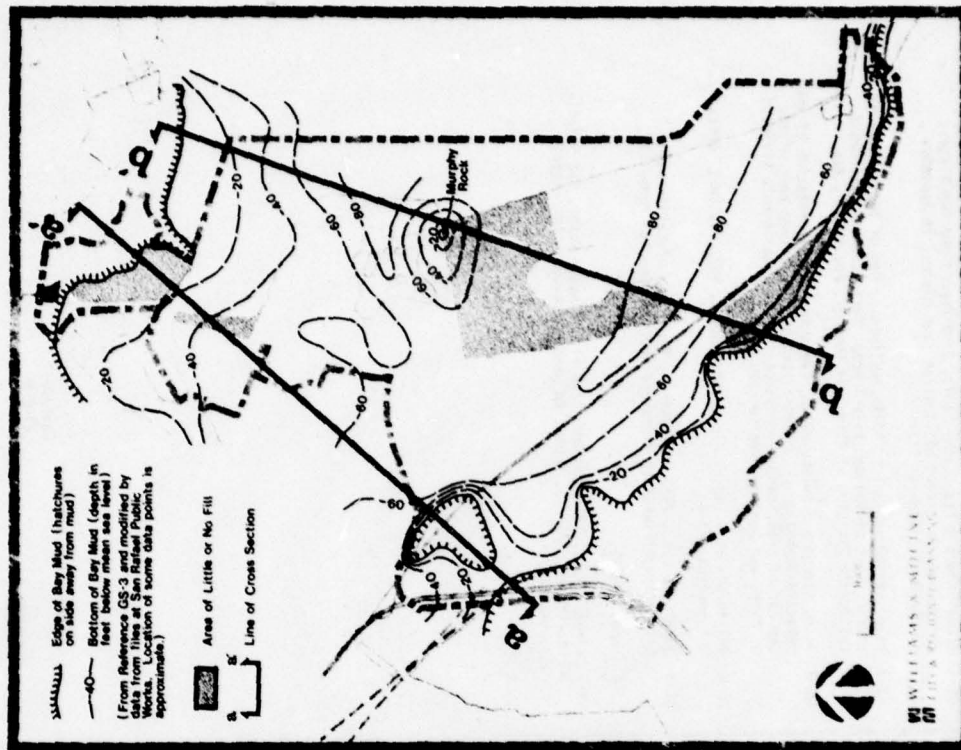
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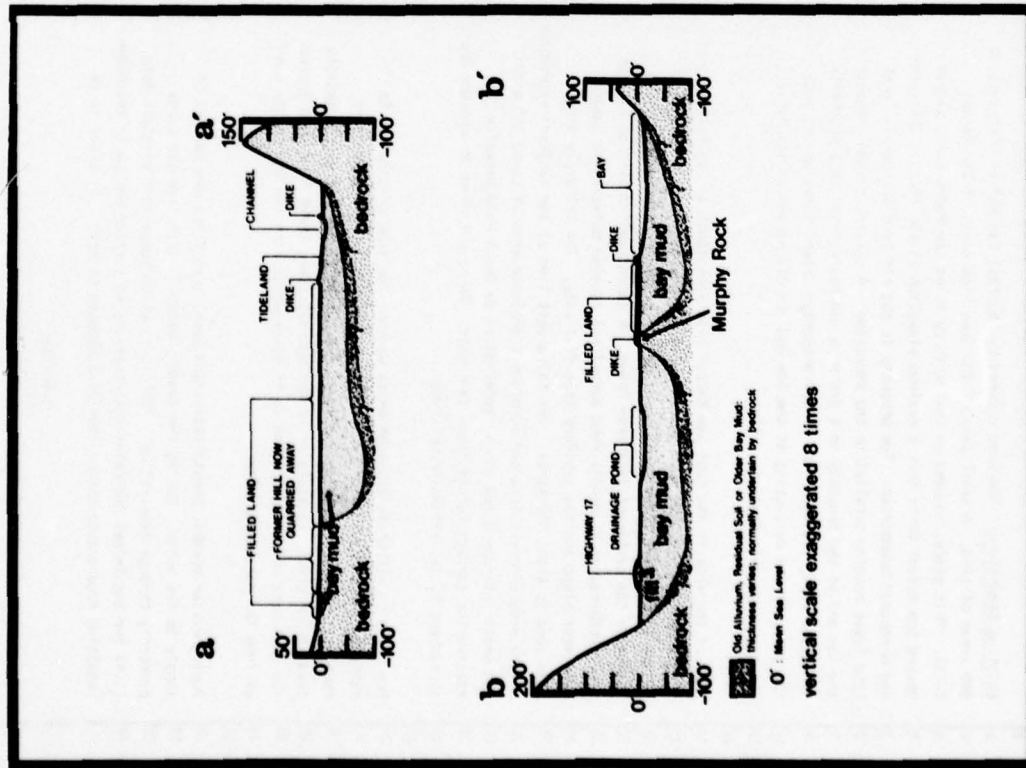
Geology: SURFACE CONDITIONS 4

VI-B-10



Geology: SUBSURFACE CONDITIONS 5

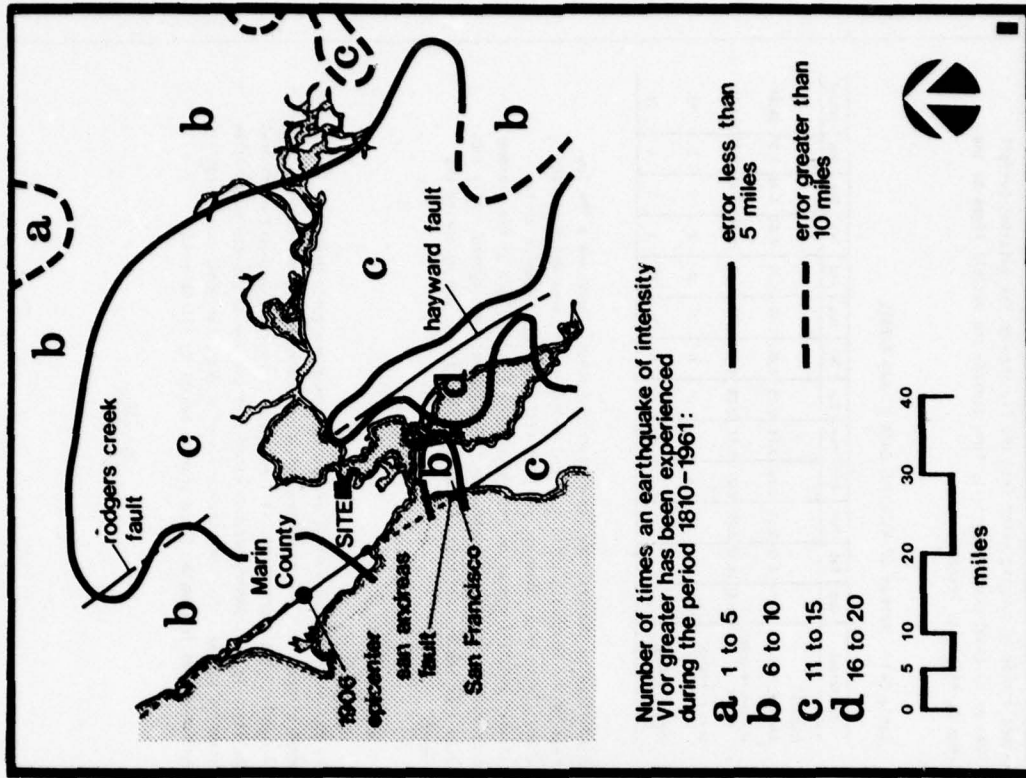
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**Geology: SUBSURFACE CONDITIONS
CROSS SECTIONS**

6

VI-8-12



**Geology: SEISMIC FREQUENCY
AND MAJOR FAULTS**

7

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Hydrologic Conditions

Existing Conditions: The area covered by the East San Rafael Plan exceeds 800 acres of land. A small part of the area lies north of San Rafael Canal. This piece, bounded on the north by Point San Pedro Road, slopes toward San Rafael Canal from a maximum elevation of 100 feet on the north and northeast boundaries. The property is cut off from San Rafael Canal by a levee running parallel to the shoreline. A culvert system connects the low end of the property to a drainage channel running in a southerly direction along the west side of the property. Flood flows coming onto the property and collecting at the low end are discharged to San Rafael Canal through this drainage system.

Most of the area in the East San Rafael Plan lies south of San Rafael Canal. This area can be broken down into three major drainage units. One unit is the Spinnaker Point area of about 80 acres which drains to a 20 acre lagoon in the center of Spinnaker Point. A second unit drains to a large pond (referred to as Middle Pond hereafter) located between the sewage treatment plant and the sanitary land fill site. The tributary area to this pond is about 500 acres. The third unit lies at the southern extremity of the redevelopment area and involves a drainage area of about 150 acres. Two small interconnected ponds (referred to as South Pond hereafter) receive the surface runoff from this unit. These are shown on updated Map 2 as numbers 5, 8a, and 8b respectively.

The ponds in all three drainage units work on the same principle. An outfall line connects each pond to San Rafael Bay. Ordinarily storm runoff will be collected in the ponds and discharged to the Bay by gravity flow at low tide. In addition to the outfall line, there is a pump system for each pond which can be used to transfer water from the Bay to the pond or from the pond to the Bay.

During winter months, precipitation and local runoff are the sources of supply to the ponds. During the summer, water is lost from the ponds primarily through evaporation. Table C-1, which summarizes rainfall data (C-1) for San Rafael indicates that there is no surface inflow to the ponds resulting from precipitation from June through October. If there is no

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subsurface inflow to the ponds, evaporation losses during the summer will result in a lowering of the ponds. However, water levels can be maintained either by pumping water from the Bay through the existing outfall lines or by tidal pumping (gravity flow through the outfall lines to the ponds at high tide levels).

Table C-1. SUMMARY OF RAINFALL DATA AT SAN RAFAEL

San Rafael	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<u>Rainfall</u>													
Average, inches	8.23	6.00	4.61	2.96	0.76	0.25	0.01	0.08	0.38	2.02	3.99	7.37	36.66
Maximum recorded, inches	17.37	19.03	9.92	8.27	5.51	2.28	0.05	0.77	4.45	10.04	9.63	22.65	55.11
Days exceeding 0.1 inch	8	7	7	4	2	0	0	0	0	2	5	6	41
Days exceeding 0.5 inch	6	4	3	2	1	0	0	0	0	1	3	4	24

In addition to the drainage ponds described above, there are a few low areas in the southeast portion of the redevelopment area which collect water. These areas have not yet been filled and are adjacent to the sanitary landfill operation and the small industrial area at the extreme south end of the redevelopment area. These areas are hydraulically isolated from the Bay and most of them will very likely dry up during the summer.

WATER QUALITY

The two primary sources of water for the ponds are quite different in terms of quality. During winter months, storm runoff is the major source of supply. The storm runoff is fresh water from the standpoint of mineral quality. In the summer, make up water from the Bay to replace evaporation losses is saline. So, over the course of a year, the ponds can change in character from freshwater flood storage basins to saline ponds.

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Presently, the Spinnaker Point unit is undeveloped except for the streets and utilities on the north side of the lagoon. Storm runoff quality under existing conditions is rural in nature but somewhat influenced by the streets and other usage. There is some traffic on the streets, and, consequently, pollutants from automobiles such as grease and oil and certain metals are available to runoff to the lagoon. In addition, school children and other visitors leave behind materials especially paper products, which find their way into the lagoon.

The quality of water in the ponds in the drainage units to the south of Spinnaker Point is influenced by the limited industrial development along Francisco Boulevard and Kerner Boulevard, and the sanitary fill operation. Most of the pollutants from the industrial area are automobile related. Erosion in the sanitary fill area is very likely to be greater than in other land areas. This operation disturbs material hauled into the site making it more prone to erosion than those areas with vegetative cover.

Water quality samples of the drainage ponds have not been taken; consequently, there is no quantitative baseline representative of existing conditions available. For purposes of this EIR, estimates were made of the quality of pollutants on the watershed tributary to the ponds that could be washed off under existing and developed conditions. These estimates together with estimates of the volume of the ponds and the exchange of water between the ponds and the Bay permit an estimate of the concentrations of key water quality parameters for existing, project, and alternative conditions. These parameters, including biochemical oxygen demand (BOD), nitrogen, and phosphorus, given an indication of the overall quality of the ponds in terms of dissolved oxygen and the potential for biostimulation (growth of aquatic weeds).

Under existing conditions, several assumptions were made to determine the "probable" existing quality of the ponds. Total annual precipitation was assumed to be 32 inches with half, 16 inches, running off into the ponds. Average evaporation of 45 inches was assumed. The ponds were assumed to remain constant at 4.0 feet. This assumption would in practice require excess runoff to be drained to the Bay during the winter and Bay water to

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be pumped into the ponds during the summer. The mass loading rates (C-2, C-3, C-4, C-5) used for the existing conditions were as follows:

	Nonurban	Urban
BOD	5 lbs/acre/yr	50 lbs/acre/yr
Nitrogen	0.25 lbs/acre/yr	2.5 lbs/acre/yr
Phosphorus	0.1 lbs/acre/yr	1.0 lbs/acre/yr

Table C-2 shows the land use acreage tributary to each of the three drainage ponds and the surface areas of the ponds.

Table C-2. PONDS AND TRIBUTARY AREAS

Pond	Drainage Area		Pond Surface Area (acres)
	Urban (acres)	Nonurban (acres)	
No. 1 Spinnaker Point	0	80	20.5
No. 2 Middle Pond	25	475	20
No. 3 South Pond	10	140	3

Using the above assumptions, the concentrations of BOD, nitrogen and phosphorus in the ponds at the end of the rainy season would be as follows:

	Spinnaker Point	Middle Pond	South Pond
BOD	0.56 mg/l	1.62 mg/l	1.98 mg/l
Nitrogen	0.03 mg/l	0.08 mg/l	0.10 mg/l
Phosphorus	0.01 mg/l	0.03 mg/l	0.04 mg/l

The quality of the Bay water which would be pumped into the ponds during summer months to maintain a constant level was assumed (C-6) to be as follows:

BOD	0.8 mg/l
Nitrogen	0.5 mg/l
Phosphorus	0.3 mg/l

With this assumption the quality of the ponds at the end of the summer would be:

	Spinnaker Point	Middle Pond	South Pond
BOD	1.20 mg/l	2.20 mg/l	2.50 mg/l
Nitrogen	0.41 mg/l	0.47 mg/l	0.49 mg/l
Phosphorus	0.25 mg/l	0.26 mg/l	0.27 mg/l

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Table C-3. SUMMARY OF WATER QUALITY CHARACTERISTICS OBSERVED IN SAN PABLO BAY

Constituent	Property/unit	Low	Mean	High
Temperature, °C		8.3	14.9	19.3
Secchi disc transparency, feet		0.5	1.6	3.5
pH		7.2	7.65	7.9
Suspended solids, mg/l		13	45	245
Chlorosity, g/l		3.5	10.5	16
Dissolved oxygen, mg/l		6.8	8.0	9.3
Dissolved oxygen saturation, percent		80	85	92
Biochemical oxygen demand, mg/l		0.1	0.8	1.4
Ammonia nitrogen, mg/l		0.06	0.15	0.34
Nitrate nitrogen, mg/l		0.03	0.35	1.0
Reactive phosphate, mg/l		0.2	0.3	0.4
Dissolved silica, mg/l		1.4	6.8	14
Coliform bacteria, MPN/100 ml		20	1×10^3	1×10^4
Total microplankton, cell/l		3.0×10^3	4.7×10^4	1.2×10^6
Total zooplankton, org/cu m		300	10,000	32,000

high-low and one low-high tide. Such a diurnal inequality of tidal heights is characteristic of the West Coast. The heights and range (C-7) of tides in San Pablo Bay are as follows:

Mean Higher High Water	3.1 feet
Mean Lower Low Water	-3.0 feet
Diurnal Range	6.1 feet

The above elevations are references to mean sea level datum.

The San Rafael Canal channel is maintained at 100 feet wide and 8 feet deep across the flats of San Pablo Bay to the mouth of San Rafael Canal thence 60 feet wide, 6 feet deep in the creek to Irwin Street in San Rafael, with a turning basin 100 feet wide, 200 feet long, 6 feet deep, at San Rafael.

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The estimated qualities of the ponds under existing conditions suggest that there should not be any problems related to dissolved oxygen depletion or algal growth in the winter. However, in the summer the nitrogen and phosphorus concentrations may provide significant nutrients for algal growth. The buildup of nutrients in the summer comes from the makeup water pumped from the Bay to replace evaporation losses. Another quality consideration not reflected in the concentration of BOD, nitrogen, and phosphorus is the difference in salinity of the ponds under winter and summer conditions. In the course of the year the ponds change from a freshwater environment to a saline environment. This is important from a biological standpoint in terms of habitat values.

A summary of the water quality characteristics of San Pablo Bay are presented in Table C-3. The Sanitary Engineering Research Laboratory (SERL) at the University of California at Berkeley conducted a comprehensive water quality investigation of San Francisco Bay which included the collection of water quality samples from 1958-1964. The summary of data shown in Table C-3 was presented in the recently completed Water Quality Control Plan for San Francisco Bay (C-6).

Even though large quantities of municipal and industrial wastewater are discharged to San Pablo Bay, the freshwater outflow from the Delta coupled with tidal action tends to keep San Pablo Bay flushed. However, the SERL investigation found several indications of local water quality degradation associated with depressed benthic diversity, heavy metals buildup near industrial discharges, periodic fish kills, and eutrophication in backwater shallows. The concentrations of BOD, nitrate, and phosphorus for the ponds under existing or project conditions will be of this quality. This quality also applied to mitigation measures which may be suggested involving the use of Bay water.

The Bay is shallow around the project area and at low tide mud flats are exposed. The back-and-forth movement of the tidal prism occurs twice daily with one cycle completing every 12.42 hours. In a 24.8 hour period there are two highs and two lows and the differences between the two cycles is large, resulting in one low-low tide, and one high-high tide, and one

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A historic summary (C-7) of dredging is shown in Table C-4.

Table C-4. DREDGING HISTORY OF SAN RAFAEL CANAL PROJECT

Fiscal Year	Quantity Removed (c.y.)	Method of Dredging
1931	37,700	hydraulic pipeline
1933	246,200	hydraulic pipeline
1935	108,000	hydraulic pipeline
1938	510,400	hydraulic pipeline
1942	101,000	hydraulic pipeline
1947	141,000 (outer)	hydraulic pipeline
	42,500 (inner)	hydraulic pipeline
1951	127,100 (outer)	hydraulic pipeline
1954	189,100 (outer)	hydraulic pipeline
	76,800 (inner)	hydraulic pipeline
1962	244,400	hydraulic pipeline
1970	242,900	hydraulic pipeline

The Corps of Engineers (C-7) proposes a frequency of dredging of six to eight years at 240,000 cubic yards, which is equivalent to an average annual quantity of 34,000 cubic yards. Based on these estimates, maintenance dredging has been tentatively scheduled for fiscal year 1977 (in the winter) when roughly 240,000 cubic yards will be removed by hydraulic pipeline dredge and deposited at a suitable land disposal site provided by the City of San Rafael. The dredging will be performed by a private dredging firm under contract to the Corps.

In previous years dredged material has been deposited at land sites along the canal. Most of these sites are now used for residential housing and other purposes, making potential disposal sites scarce.

Adverse Impacts: The project will impose greater pollution loads on the drainage ponds than presently exist. Mass loading rates for urban areas are ten times greater than those used for rural areas. Table C-5 compares the project to existing conditions relative to the impacts of pollutant loadings on the drainage ponds.

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Table C-5. POND QUALITY--EXISTING CONDITIONS VERSUS PROJECT

Pond Size/Loadings/Quality	Winter Project		Summer Project		South Pond Project	
	Existing Conditions	Project Conditions	Existing Conditions	Project Conditions	Existing Conditions	Project Conditions
Pond	102	53	100	200	15	15
Volume, acre-feet						
Land Use						
Open, acres	80	15.5	475	200	140	20
Urban, acres	0	72	25	200	15	40
Quality of Pond (summer)						
D.O., mg/l	1.20	0.20	2.20	6.70	2.50	7.70
Nitrogen, mg/l	0.41	0.46	0.47	0.40	0.40	0.73
Phosphorus, mg/l	0.25	0.30	0.26	0.15	0.27	0.28

Under project conditions, there is a potential for water quality problems in all three ponds. BOD concentrations ranging from 6.7 mg/l in Middle Pond to 8.2 mg/l in the Spinnaker Point pond are high enough to depress dissolved oxygen levels and the nitrogen and phosphorus concentrations are sufficient to cause algal growth.

In addition to the nutrients washed off into the ponds during the winter, there could be additional nutrients entering the ponds during summer months. Fertilization and irrigation of open areas would be the main source of nutrients. These nutrients were not quantified; however, any additional nutrients under project conditions would tend to make the quality of the lagoon worse than shown in Table C-5.

Short term adverse water quality impacts may result from construction activities in the project area. Erosion from construction sites is probably the greatest source of sediment per unit land area with sediment yields varying from two to 200 greater than yields from naturally vegetated areas (C-8).

The proposed Seastrand housing development will involve home construction on fairly steep slopes and this could create erosion problem depending on the effectiveness of erosion control measures used during construction. Construction in other parts of the redevelopment area will also create the potential for erosion and siltation in the drainage ponds. However, the

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1 proposed industrial and housing developments are on flat areas with the
2 exception of Seastrand. The potential for erosion and siltation
3 problems should not be great provided some type of erosion control
4 measures are employed during construction and until landscaping and lawns
5 become established. Ground cover with good erosion control properties planted
6 on cut areas should be sufficient to minimize erosion during the winter
7 months.

8
9 The inboard marina proposed for Spinnaker Point will adversely impact the
10 quality of San Rafael Bay in two ways. First, it will be necessary to
11 dredge a connecting channel from the marina entrance to the presently
12 maintained San Rafael Canal channel. This activity will put bottom sediments
13 into suspension causing a degradation of Bay quality.

14 Periodic maintenance dredging of the connecting
15 channel will undoubtedly be required to keep the channel at desired
16 depths. As with the construction dredging, the maintenance dredging will
17 result in localized water quality degradation. The major impact of
18 dredging on water quality in either case would be rather short term.

19
20 The second adverse impact on water quality associated with the marina
21 concerns pollutant loads generated by the boats. The types of pollutants
22 that may be discharged to the marina and ultimately be transported to the
23 Bay include oil products, materials used for minor repairs, and cleaning
24 agents. However, with the location of adequate pump-out facilities these
25 waste products can be prevented from entering the Marina.

26
27 Beneficial Impacts: The project may result in a beneficial effect on San
28 Rafael Bay through the construction of a marina. The marina would increase
29 the area of San Rafael Bay by about 35 acres. While this increase is
30 very small compared to existing surface area of the Bay, it is in the
31 right direction for those who believe that increases in the size of San
32 Francisco Bay are beneficial.

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Mitigation Measures: There are two primary ways of mitigating the potential
water quality problems envisioned for the drainage ponds under project condi-
tions. First, the quantity of pollutants coming off the urban areas could
be reduced; and second, the water in the ponds could be diluted with better
quality water to reduce the concentrations of BOD, nitrogen, and phosphorus.
One method of reducing the urban pollutant load would be to implement a
concerted street sweeping program. A significant percentage of the urban
pollutant load picked up in storm runoff accumulates on streets.

Two mitigation measures related to diluting the pollution load from urban
runoff may be suggested:

Bring a supplemental source of fresh water to the ponds. This
may not be a politically feasible solution in view of the current
water supply situation in Marin County.

Establish a plan of operation to exchange the storm runoff into
the ponds with Bay water on a year-round basis. In effect the
ponds would be saline all year and their quality would be equivalent
to that of the Bay. The potential for algal growth under an operation
scheme such as this would be less than the potential under the scheme
of allowing for discharge of storm runoff by gravity only through the
existing outfall line.

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REFERENCES (C)

Organizations and Individuals Contacted

Several individuals were contacted during the course of collecting information on the hydrologic aspects of the East San Rafael Plan including the Spinnaker Point Housing and Marina projects. The information provided by the following people is greatly appreciated.

Dan Coleman - Dan Coleman Associates
 Domenic Selmi - Dan Coleman Associates
 Judith Palka - Dan Coleman Associates
 Dave Bernardi - City of San Rafael
 Bob Lawson - Harding-Lawson Associates
 Dr. Ray Krone - University of California, Davis

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 VI-C-12

Atmospheric Conditions

Existing Conditions: The site on the eastern shoreline boundary of the City of San Rafael, enjoys the unique weather conditions typical of the San Francisco Bay Area due to local geological physiographic and meteorological conditions. During the year there are two seasons: a dry sunny period from May through October and a rainy season from November through April. In San Rafael, mean mid summer temperatures range between 80 and 90° F, with some excursions over 90° F. Mean mid winter temperatures are about 30 to 40° F with occasional short duration frost periods. In the rainy season, 28 to 35 inches of water are deposited. Meteorological data, averaged climatic factors and general air quality conditions are described in detailed descriptions listed in References AQ-1 to AQ-8 inclusive. Data summaries in Tables AQ-1 and AQ-2, originate in Reference AQ-2.

The principal paths of windflows as measured at the BAAPCD San Rafael station are from the southeast in the early morning hours, and at higher speeds from the northwest in the late afternoon and evening periods. The flows correspond in general with the basic geographical orientation of the local valleys as well as the on-land flow of marine air as the morning sun heats the land areas and draws the air up the valley. In the evening, the air mass drains back down the valley as it cools by contact with the radiationally cooled earth surface. This predictable pattern which occurs more than 50 percent of the time during the summer (dry) months, becomes less regular in the winter when winds and air flows are related to the more random arrival and passage of storm fronts. Regional gusty winds occur with the vigorous movement of the storm fronts and also as a result of cooler marine air being drawn in over the coastal ranges by intense solar heating of the land areas of the Central Valley. Portions of Tables AQ-1 and AQ-2 summarize average weather and wind data. Fog in the late spring and early fall periods can form locally late at night, burning off by mid morning. The coastal hills do provide a measure of protection of the San Rafael areas from the denser seaside fog formations typical of San Francisco. As such then, the area has a high proportion of sunny days which in part could play a significant role in the formation of photochemical

Atmospheric
VI-D-1

oxidant. A 1972 detailed report (Reference AQ-5) by the Technical Services Division of the BAAPCD assessed the impact of growth on the air quality of Southeastern Marin County. The conclusions of the report are very pertinent to the developments planned for the San Rafael area:

- (i) The potential for contaminant accumulation is high in the study area.
- (ii) Current air quality is good and air quality standards are not frequently exceeded due to a combination of low emissions and favorable geographic location, upwind of major sources of emissions.
- (iii) Current contaminant measurements are almost exclusively originated by vehicles.

A final conclusion of the report stated future local air quality will be substantially better with a bus-oriented transit system compared to the still current highway-automobile-oriented system.

The high potential for pollutant accumulation is due to the lack of ventilating winds and to high inversion altitudes. A wind data summary from Reference AQ-6 and 7, has the following values averaged over 31 years.

Wind Speed (Knots)	Calm	1-3	4-6	7-10	11-16	17-21	22-27
% Frequency of Occurrence		31.6	16.4	17.6	23.0	9.8	1.3
						0.3	

From the tabulation, it is apparent that winds less than five miles per hour occur more than 50 percent of the time during the year. On many occasions then, ventilating winds are just not available to dilute and disperse any air pollutants. In Tables AQ-1, and AQ-2, the stability factor is a measure of the atmosphere to disperse pollutants. A high stability factor indicates poor mixing capability, the probable existence of an inversion layer very near the ground (which can occur five to seven percent of the early morning periods), light variable (wafting) winds can contribute to the rapid accumulation of vehicular emissions which violate standards (for example, the eight-hour CO standard violated on one occasion in the third week of December 1975). A seasonal variation of inversion altitudes results in predominance of surface inversions during the winter

Atmospheric
VI-D-2

inversions, while summer month inversions occur between 500 and 2,500 feet. In the summer months, the afternoon inversion altitudes are 500 to 1,000 feet whereas compared to the morning altitudes of 1,000 to 2,000 feet. In this latter case, photochemical oxidant (formed by the action of sunlight on nitrogen oxides and reactive hydrocarbon species) is constrained to occupy a reduced volume region, thus increasing concentrations. Hence the aforementioned conclusion of high potential for pollutant accumulation is very valid in the San Rafael area. Oxidant is the product of the insolation, for several hours, of the reacting species. Hence local oxidant levels are a function of emissions released well upwind of the receptor location. Locally released nitrogen oxides and hydrocarbons from 6 AM to 9 AM traffic in general contribute in a very small but non-negligible way to downwind area oxidant levels.

The East San Rafael Redevelopment Project is located on a largely undeveloped land area as shown in Figures 1 and 2.

The major local sources of pollution are the vehicles driven within and through the City of San Rafael, the petrochemical refineries of Richmond to the east across San Francisco Bay; further away are the large metropolitan areas and industries of the cities of Oakland and San Francisco. Tables AQ-1 and AQ-2 confirm conclusion (ii) of the earlier discussion, that violations of air quality standards are not too common and local air quality is good. The following listing details applicable District Air Quality Standards for 1976. Where Federal (F) or State (S) air quality standards have different values, the BAPCD has adopted the more stringent values as shown below:

Pollutant

Oxidant, greater than 8 parts per hundred million (3 ppm) for 1 hour (F).
Carbon Monoxide; 35 parts per million (35 ppm) for 1 hour or 9 parts per million (9 ppm) for 8 hours (F).

Nitrogen Dioxide; 25 ppm for 1 hour (S).

Sulfur Dioxide: 50 ppm for 1 hour or 4 ppm for 24 hours (S, July 1975).

Suspended Particulate; 100 micrograms per cubic meter μ/m^3 for 24 hours or 60 μ/m^3 as an annual geometric mean (S).

or 60 u/m^3 as an annual geometric mean (S).

Atmospheric
VI-D-3

TABLE NO - 1

Source: BAAQCD/Contaminant Weather Summaries
1974-1975

Monthly Avg.	Temp °F	Monthly Avg.	Stability Factor	Mixing	Vertical	Good 0-5.0	Feet above 5.0	Monthly Average	Mind Speed mph	Floating	Winds	Index	Oxidant (pphm)	Maximum value	Carbon Monoxide	Mean value	(ppm)	Maximum	Mean	Nitrogen Dioxide	Maximum	Mean	(ppm)	Maximum	Mean	Suspended Particulate	(Geometric Mean	(ug/m ³)	Sulfur Dioxide	(ppb)	Maximum	Mean	No. Days when BAPCD	(¹ = Traces)	Standards were exceeded in	San Rafael			
0	1 day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Jan	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7
Feb	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7
Mar	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7
Apr	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7
May	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7
Jun	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7
Jul	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7
Aug	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7
Sep	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7
Oct	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7
Nov	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7
Dec	60.5	65.2	67.0	73.5	77.3	85.9	89.3	88.3	88.7	83.3	71.2	54.8	0.7	-1.8	2.0	-3.0	-1.3	-0.3	3.1	7.2	11.2	14.4	7.4	1.8	0.7	Good	Good	2.9	2.7	3.6	2.8	3.9	3.6	2.7	2.8	2.0	1.6	2.1	2.7

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There is no State standard for reactive (non-methane) hydrocarbons. However, a Federal standard of 24-pphm for 3 hours (6 AM to 9 AM) does exist. The State lead standard is 1.5 w/m³ meter based on a 30 day average. (Most atmospheric lead compounds originate from the exhaust pipes of automobiles after being added to the gasoline).

The bottom line of Tables AQ-1 and AQ-2 show that violations of applicable standards occur very seldom at the SAAPCD San Rafael monitoring station. In 1974 the oxidant standard was exceeded on five occasions, the suspended particulate standards on three days.

In 1976, (a year in which meteorological conditions in the nine Bay Area Counties were very favorable for dilution and dispersion of pollutants especially photochemical oxidant) there was one oxidant violation. In December 1975, the adverse meteorological conditions that prevented dispersion of pollutants, carbon monoxide levels persisted for the eight hour period at levels that exceeded the nine ppm standard leading to one violation for this pollutant.

In June 1975, the California Air Resources Board directed all air pollution control districts to recalibrate oxidant analyzers. The effect was to lower all oxidant readings by about 20 percent. Under this revised description, the federal oxidant standard of eight parts per hundred million for one hour was exceeded once in 1974 and once in 1975 as compared to the original data shown in Tables AQ-1 and AQ-2.

A waste treatment plant operated by the Sanitary District is located just southwest of the proposed development site. Episodes of odor release have occurred in the past when the plant is processing unexpected chemical wastes. The resulting release of odors due to organic acids, organic nitrogen compounds, sulfides or mercaptans while not violating any standards for odorous compounds (as specified in Division 15 of BAAQPC Regulation 2), nor having any adverse medical effects, certainly can be an annoying nuisance to the average person. The plant is expected to be relocated in about two years. Local borrow-pit quarry operations can give rise to air-borne soil and rock dusts that lead to a reduction in local visibility as well as adding to the suspended particulate burden.

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VI-D-6

Monthly Avg.	Temp °F	Monthly Avg.	Stability Factor	Good 0- Vertical Mixing	Poor 0.1 to 5.0	Foot above 5.0	Monthly Average	Wind Speed mph	Prevailing	Minds	Ventilation	Index	Oxidant (pphm)	Maximum value	Mean value	Carbon Monoxide	Maximum (ppm)	Nitrogen Dioxide	Mean	Suspended Particulate	(Geometric Mean	Sulfur Dioxide	(ppb)	Maximum	Mean	Number days when (T = Traces)	BAQCD standards were exceeded in	San Rafael																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Jan	63.5	65.3	66.7	70	83.8	84	87	88.3	87.3	77.9	79	66.8	2.0	9.1	-0.3	-5.6	-4.3	0	1.6	-3.6	7.2	10.7	0.2	-1.0	2.0	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4	4.9	4.1	10.3	8.8	8.3	2.6	2.7	2.6	2.7	2.6	1.7	1.0	3	4	5	5	3.7	3.5	2.1	2.5	2.0	3.2	8	6	2.6	1.7	1.0	8.6	16	19	14.8	9.4	8.2	5.4

TABLE A9 - 2
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Impacts: Local air pollutants will be released by the vehicles driven by residents and users of the planned facilities and to a minor extent, pollutants will be produced in the processes of heating, cooling and cleaning the proposed residences, industrial buildings and facilities. During the construction phases, earthmoving and dredging operations will give rise to heavy equipment engine emissions as well as episodes of windblown particulate from exposed soil or cut and fill material. These latter problems will cease upon completion of the ground preparation activities and initial marina dredging operations.

The following estimates for a majority of the emissions attributable to the proposed residential, commercial and industrial portions of the project are calculated from traffic estimates furnished by the Traffic Engineer in concert with analysis techniques, models and vehicle emission factors given in the Reference List numbers AQ-9 to AQ-15 inclusive. Potential sulfur oxide and sulfate problems are considered in the estimates as well. The estimates do not consider the effect of decreased vehicle miles per day due to increased fuel prices, decreased fuel availability, legislation that penalizes excessive gasoline consumption of multi-car-ownership, and public availability and acceptance of some form of public transportation, car or van-pooling schemes. In these latter cases, if applied to the entire Bay Area, there would be a reduction in the emission of photochemically reacting species of pollutants, which would in turn result in a reduced production of oxidant. Local restriction of traffic would have no measurable effect on local oxidant levels, although carbon monoxide levels at roadside (which currently pose no measurable health problem) and roadside sulfur oxides, sulfates and lead halides (all of which do pose health problems) would be decreased.

The estimates are given as concentrations in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The sulfuric acid mist production values assume:

- (i) the average sulfur content of gasoline persists.
- (ii) vehicles in general will be equipped with catalytic exhaust purifiers which effectively convert SO_2 to SO_3 . At present only most 1975 and 1976 vehicles have such a device and these cars represent only ten percent of the current 1976 typical California vehicle

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population used to generate the emission estimates. However, in order to meet the increasingly stringent vehicle emission standards, in-five to ten years a majority of the cars will be equipped with such devices. Then the devices which have worked so well to reduce carbon monoxide and hydrocarbon emissions will potentially negate these desirable results with a far more serious problem in the form of sulfates and acid mists.

Regional (1) and Local (2) impacts (Table AQ-4) as well as roadside (3) levels of pollutants (Table AQ-5) are defined below the tabulations (Table AQ-3). Current standards are shown in parentheses. BAAPCD 1978 California vehicles emission profiles, Reference AQ-9, are used in the estimates.

TABLE AQ-3
EMISSION FACTORS: 1978 California Cars

Emission	Running; grams/mile (to be corrected for speed)	Idle; grams/ minute
Carbon Monoxide	23.2	9.0
Organics	3.3	0.74
Nitrogen Oxides	3.3	0.06
Sulfur Oxides	0.18	0.05
Particulates	0.33	0.08
Sulfuric Acid Mists (assuming most vehicles will eventually be equipped with catalytic mufflers)	0.05	0.02

The average local business/shopping/recreational trip length is eight miles, half of which occurs at 20 miles per hour, the other half at 35 miles per hour. Three minutes of engine idle are associated with each vehicle trip.

Trips generated at specific road locations are listed and ten percent of these figures are used with ten percent of the non-Project peak-hour traffic to determine roadside levels of carbon monoxide. The average peak-hour speed is assumed to be ten miles per hour. For eight hour averaging times, an average speed of 20 miles per hour is assumed.

Trip generation factors were 8.5 per residence; four trips per marina berth; 30 trips per acre of recreational area; 55 trips per 1,000 square feet of shopping area; 30 trips per 1,000 square feet of restaurant facility; and 80 trips per acre of warehousing and industrial park facilities.

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Average meteorological conditions of Category C* with 3m/sec winds are assumed for the Local impact concentrations. An extremely stable atmosphere of Category F with 2m/sec wind speeds, which would be the worst case for accumulation of emissions, is shown in parentheses in the Local impact column.

TABLE AQ-4

Emission Standards
(for specified interval)
Regional¹ Local²
Impacts (ug/m³)
(figures in parentheses are for Category F)

Carbon Monoxide (40,000 ug/m ³ , 1 hr.) (10,000 ug/m ³ , 8 hr.)	12.2 8.6	646 (980)
Hydrocarbons (160 ug/m ³ , 3 hr. 6 am. to 9 a.m. Non-methane)	0.65	34 (74)
Nitrogen Oxides (500 ug/m ³ , 1 hr.)	1.95	102 (222)
Sulfur Oxides (1,306 ug/m ³ , 1 hr.) (104 ug/m ³ , 24 hr.)	0.2 0.12	10.7 (23) 6.4 (13.9)
Particulate (100 ug/m ³ , 24 hr.)	0.2	11.7 (25)
Sulfuric Acid Mist (25 ug/m ³ for 24 hrs.)	.04	1.9 (4)

* Categories A to F extremely unstable to stable.

1 Regional Impact is defined as the concentration produced ten kilometers downwind of the project center with conditions consisting of a 2-meter-per-second wind, a 300 meter mixing height, and total project emissions treated as emanating from a ground level point source at the project center. A one-hour averaging time is assumed.

2 Local Impact is defined as an annual averaged concentration for an area of one square kilometer using an annual averaged wind speed of 2 meters/second and simple Gaussian dispersion models.

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TABLE AQ-5

Roadside Carbon Monoxide Levels in ug/m³ for 1-Hour and 8-Hour Periods³
CO standards are given in Table AQ-4. The figures in parentheses are for receptors located 100 feet from the roadside. Calculations are made for roadways with Project plus Non-Project peak-hour volumes of vehicles.

Road location; Section (Project; Non-Project Volumes)	Peak Hour Volumes	1 Hour	8 Hours
Bellam Blvd. - East of Kerner (5,320, 1,260)	658	1,373 (521)	645 (203)
Bellam Blvd. east of Francisco Blvd East (8,430, 10,950)	1,938	4,046 (1,537)	1,900 (600)
Bellam Blvd. W of SR 17 Int. (7,010, 15,470)	2,248	4,700 (1,786)	2,210 (700)
Canal St. - east of Medway Road (1,300, 5,310)	661	1,380 (524)	648 (204)
Medway Road - Canal St. to Francisco Blvd. (1,300, 5,750)	705	1,472 (560)	692 (220)
Anderson Dr. - north of Bellam Blvd. (3,590, 9,700)	1,329	2,774 (1,050)	1,300 (410)
Anderson Dr. - south of Bellam Blvd. (4,250, 4,130)	838	1,750 (665)	820 (260)
Anderson Dr. - north of Sir Francis Drake (1,300, --)	130	271 (100)	30 (40)
Francisco Blvd. West north of Anderson Dr. (420, 3,500)	392	818 (310)	390 (120)
Francisco Blvd. East north of Medway Rd. (3,790, 14,560)	1,835	3,830 (1,460)	1,800 (570)
Francisco Blvd. East Medway to Bellam (2,680, 11,260)	1,394	2,910 (1,106)	1,370 (430)

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TABLE AQ-6

Estimated Emissions in Pounds Per Day During Construction		Estimated Emissions in Pounds Per Day During Construction	
East San Rafael Sub-Area	Redevelopment	Particu- late	Nitrogen Oxides
Spinnaker Point	46	61	304
Seastrand	5	7	33
Marina (primarily Dredging Operations)	80	10	100
Commercial	5	7	40
Industrial	100	120	600
1974 Marin County	14,200	90,000	62,000
			3,000
			520,000

These quantities of emissions are not additive in their local impact since not all of these projects will be in the earth moving and filling phase at the same time. However, dredging operations do release substantial quantities of pollutants; yet because of the location of the source on open water areas where dilution and dispersion can readily occur, Reference AQ-8 points out that no citations have been issued to the Army Corps of Engineers who perform large dredging operations in the Bay Area. As well, the emissions attributable to the boat traffic related to the Marina are not emitted into the local area, but are distributed over vast areas of waterways which results in very low concentrations. Other than when powered boats are accelerating from the berth area, the emitted pollutants are rapidly dispersed to non-detectable levels. The boat motors do release reactive hydrocarbons and nitrogen oxides, which in conjunction with other sources of photochemical reactants, will be acted upon by sunlight to play a tiny but finite role in creating increased oxidant levels well downwind of the release point: as in the cities adjacent to Central and South San Francisco Bay.

During earthmoving operations the emissions of the quantities of pollutants shown will not by themselves lead to any violation of air quality standards now being met in the vicinity of the site. However, they are substantial

Atmospheric
VI-D-12

Francisco Blvd. East
north of Bellam
(1,840, 3,510)

535

1,120 (425)

525 (166)

Francisco Blvd. East
north of San Quentin Int.
(680, 1,000)

168

350 (133)

165 (52)

Kerner Blvd.
north of Bellam
(1,080, 4,890)

597

1,246 (473)

585 (185)

Kerner Blvd.
south of Bellam
(2,620, 1,000)

362

756 (287)

355 (112)

Kerner Blvd.
north of Francisco Blvd. E.
(1,030, --)

103

215 (82)

100 (32)

Point San Pedro Rd.
west of Seaway
(330, 13,300)

1,363

2,846 (1,081)

1,337 (423)

SR 101-North
(6,200, 102,000)

10,820

22,592 (8,590)

10,620 (3,360)

SR 101-South
(3,800, 89,000)

9,280

19,380 (7,360)

9,100 (2,880)

SR 17-South
(1,900, 25,500)

2,740

5,720 (2,174)

2,690 (850)

In each case the values shown would be added to the local background levels for CO which are about 1,500 $\mu\text{g}/\text{m}^3$ to 2,500 $\mu\text{g}/\text{m}^3$.

The emissions attributable to the short-term construction processes and earth moving operations associated with the East San Rafael Plan are shown along with the daily emission burden of Marin County in 1974 in Table AQ-6. Heavy equipment diesel engine emissions in pounds per 1,000 gallons of diesel fuel consumed from Reference AQ-11 are as follows: Particulate, 30; Hydrocarbons, 40; Nitrogen Oxides, 200; Sulfur Oxides, 31; Carbon Monoxide, 100.

3 Roadside concentrations are based on one-hour and eight-hour peak-hour periods of operation of project plus non-project traffic volumes. Peak-hour volume should exceed 2,000 vehicles and project-related traffic should account for ten percent or more of this volume to generate significant quantities of CO at roadside.

Atmospheric
VI-D-11

1 and in concert with other locally released vehicular emissions, as well as
2 adverse meteorological conditions of light variable winds and a low altitude
3 inversion trapping emissions near ground level, very localized excesses of
4 carbon monoxide or sulfur oxides could occur. As well, particles picked
5 up by the wind from exposed soil or quarry material dusts could lead to
6 episodes of excess particulate material in the air.

7 As mentioned earlier in Reference AQ-5, the BAAPCD study to assess the impact
8 of growth upon the air quality of southeastern Marin County, concluded
9 that contaminant levels were low, and rarely exceeded the air quality
10 standards, although there was a high pollution potential. Local area pollu-
11 tants were almost exclusively produced by automobiles and the possibility of
12 rapid deterioration of future air quality would be related to urban growth
13 coupled with failure to control the emissions released from vehicles driven by
14 residents. The study also indicates a transportation system based on a bus-
15 oriented transit scheme would result in substantially better local air
16 quality than a highway-automobile oriented scheme.

17 In today's vehicle population, emissions per vehicle-mile of carbon monoxide,
18 nitrogen oxides and hydrocarbons are relatively well controlled although
19 the success of currently used catalytic mufflers can lead to potential sul-
20 fate problems near heavily travelled roadways (discussed later in this report
21 The legislated phase-out of lead additives from gasoline also reduces the
22 suspended particulate emissions related to automobiles. However, large
23 volumes of traffic on major roadways still result in high roadside con-
24 taminant levels and violations of standards (Table AQ-4) are to be expected
25 along S.R. 101 and U.S.R. 17.

26 On days of adverse meteorological conditions that enhance pollution accumu-
27 lation (Category F stability), along the roads handling peak-hour volumes
28 of 2,000 vehicles, the roadside levels of carbon monoxide will probably
29 exceed the one hour standards of $40,000 \mu\text{g}/\text{m}^3$ (35 parts per million) especially
30 where congestion, slow-down and stack-up of traffic flows are occurring.
31 Concentrations at roadside shown in the tabulation would then increase by
32 a factor of two to three times the values shown. Concentrations decrease
33 rapidly as receptors in general move away from roadside. One hundred feet

Atmospheric
VI-D-13

1 from roadside, CO values have decreased by 60 percent. From a local area
2 point of view, the one hour standard for CO of $40,000 \mu\text{g}/\text{m}^3$ has never been
3 violated in the Bay Area.

4 On the other hand, the local area background levels of pollutants which
5 originate from the emissions along the roadways from traffic attributable
6 to the Redevelopment Project, are quite low, 650 to $1,400 \mu\text{g}/\text{m}^3$ as shown by
7 the local impact data of Table AQ-2. The local background levels of each
8 pollutant would be added to the estimates. For carbon monoxide, background
9 values were measured at $1,500$ to $2,500 \mu\text{g}/\text{m}^3$. These values are much lower
10 than high-hour CO measurements at the BAAPCD Station in the downtown, a more
11 geographically confined location. Better ventilation and dispersion processes
12 are occurring in the relatively open East San Rafael location, hence while
13 emission of the pollutants are substantial, on-site violation of standards
14 for carbon monoxide, nitrogen oxides or hydrocarbons are highly improbable.

15 The suspended particulate problem in the area (about 40 percent of which is
16 attributable to vehicles), will continue to be a problem and excesses that
17 lead to some violations of the 24 hour State standard are expected along
18 with wind-borne dusts and particulate as well as the visibility reduction
19 effects of photochemical oxidant and sulfate aerosols. The project related
20 particulate, 12 to $25 \mu\text{g}/\text{m}^3$, will add to the local burden for this pollutant.

21 The emission of project-attributable nitrogen oxides and reactive hydrocar-
22 bons will have a very small but non-negligible effect in increasing photo-
23 chemical oxidant levels well downwind of their release points, the lines of
24 traffic from 6 A.M. to 9 A.M. Local oxidant levels would not be affected
25 by local traffic flows. In general, downwind oxidant formation potential is
26 related to release of reactive hydrocarbons. The control of the latter
27 emissions attributable to the project cars has some effect in reducing the
28 future downwind oxidant production.

29 The sulfate problem which is only beginning to evolve and the degree to
30 which the project makes a contribution must not be neglected. The Air
31 Pollution Advisory Committee of the State Department of Health has advised
32 the Air Resources Board that there is an increasing likelihood of significant

Atmospheric
VI-D-14

1 harm to human respiratory systems when 24 hour average sulfate levels are
2 above 25 ug/m³. Sulfates are tiny enough to pass through the natural filtering
3 systems of the human body and they can settle deep in the lung tissue
4 aggravating respiratory ailments such as emphysema, bronchitis and asthma.
5 Airborne sulfates damage plants and corrode metals and painted surfaces.
6 A person with lung impairment or heart problems has a threshold for noticeable
7 adverse effects (like increased heart burden) at about 10 ug/m³. Table AQ-4
8 shows the East San Rafael Plan, when implemented, will contribute local
9 sulfate concentrations of 2 to 4 ug/m³ under adverse meteorological conditions.

11 Mitigations: From a broad perspective, to improve air quality in the Bay
12 Area, there must be a reduction in overall vehicle miles travelled in the
13 entire nine county region. The highly mobile lifestyle made possible by
14 cars and a network of good roads must be de-emphasized in favor of air
15 quality. The use of slowly-growing bus or mass-transit scheme can be
16 promoted by making it harder to use the freeways by individual drivers by
17 legislating mandatory car or van-pooling; by removing lanes from busy
18 roadways and making them exclusive bus lanes; and by using stop lights at
19 on and off ramps to limit the number of people and cars who can get on and
20 off the freeway. In this way a public transportation scheme will acquire an
21 advantage in time, convenience and expense over automobiles. Public
22 transit ridership would increase substantially; this was a major considera-
23 tion of the 1972 BAAPCD study. With today's traffic volumes, the recommenda-
24 tion is even more urgent.

26 Bicycle lanes should be provided to serve local schools, shopping centers
27 and recreation centers, such as the proposed marina or a ball-park in the
28 southwest corner of the site region. They should be well buffered from the
29 heavily travelled roadways. Weather-protected bus stops and car-pooling
30 waiting/collection stations should be provided on site. These stations
31 must also be used to car pool to the Larkspur Ferry Terminal and in
32 this way also reduce vehicle miles travelled, which as part of a wide-spread
33 effort could result in an improved San Rafael as well as Bay Area Air Quality.

35 The State has initiated a program to remove lead from gasoline which by
36 1980 should result in a 50 percent of more reduction in lead content of the

Atmospheric
VI-D-15

1 air especially adjacent to heavily travelled roads where current lead
2 levels are ten to 20 times above the State standards for lead.
3
4 Possible solutions for the sulfate problem include a sulfate trapping device
5 in automobile exhaust pipes and removing the sulfur from the gasoline. The
6 latter process will be both expensive and difficult as high sulfur content
7 crude oil is sold on the world market. A recently enacted sulfate standard
8 of 25 ug/m³ for 24 hours will certainly focus attention on sulfur in fuels.
9 However, legislating the removal of sulfur occurring in fuels is one thing;
10 actually removing the sulfur placed there by Nature is going to require an
11 incredible effort by Technology and results may be very slow in coming.

13 Heavy equipment operations (construction impacts) should be curtailed on
14 days of adverse weather conditions (from a pollution accumulation viewpoint)
15 and exposed soils should be well watered-down to prevent wind-blown dust
16 clouds. Equipment should be maintained in well tuned and adjusted condition
17 to reduce engine emissions. Fleet movements should be timed so as not to
18 substantially interfere with patterns of established peak-hour traffic flows.

Atmospheric
VI-D-16

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BAAPCD Bay Area Air Pollution Control Board
EPA Environmental Protection Agency

Atmospheric
VI-D-16

Biological Conditions.

Existing Conditions: The East San Rafael redevelopment area has been and continues to be heavily affected by the activities of man. Much of the area presently is occupied by housing or commercial establishments and most of the remaining area has undergone or is undergoing some form of development and/or land alteration. Four basic types of biological habitat exist within the boundaries of the project (excluding the completely developed portions). These are shown on the map in Figure 9 and are described below:

BIOLOGICAL HABITAT - 1. Mudflats

Mudflats are extremely high in productivity. Their resource value in producing many valuable sport and commercial species cannot be overstated.

San Rafael Bay has extensive mudflats. Roughly 25,000 square feet of mudflats in San Rafael Bay were investigated by personnel of the California Department of Fish and Game (B-1) to determine their productivity. The area was estimated to harbor 200,000 soft-shelled clams (*Mya arenaria*) and approximately 50,000 Japanese littleneck clams (*Tapes semidecussata*).

This is approximately eight soft-shelled clams and two littleneck clams per square foot. Another study (B-2) estimated that there were approximately 500,000 clams on the intertidal mudflats of San Rafael Bay.

Neither of these clams is native to the West Coast. *M. arenaria* first appeared in the 1870's. It is native to the East Coast and probably was accidentally introduced with oysters. Likewise the introduction of *T. semidecussata* was most likely accidental. It first appeared on the West Coast in 1936 and has rapidly spread, displacing the native littleneck clam, *Prototheca staminea*.

These clams are edible and may be harvested commercially or as a recreational activity. At present this cannot be permitted because of the strong possibility of the clams being contaminated by sanitary wastes. If the planned regionalization of treatment plants is realized, however, there is a

Biology
VI-E-1

1 good possibility that attendant improvements in water quality will allow
2 harvesting of this resource again.

3 Even though man cannot safely make use of the clams many forms of sport
4 and commercial fishes feed extensively in the waters over the mudflats.
5 These fishes feed on clams, annelids (worms), crustaceans and minor worm-
6 like phyla. Some of the fishes which make use of this food resource include
7 striped bass, flounders, sturgeons, and rays.

8 Much of the food for mudflat organisms is derived from saltmarsh production.
9 Like the mudflats, the saltmarshes have been greatly depleted by filling
10 and draining. They too are now being recognized as extremely important and
11 steps have been taken to preserve the remaining saltmarshes of the Bay.

12 Appendix B-I lists some of the important species of animals found on the
13 mudflats of San Rafael Bay.

14 2. Saltmarshes

15 The saltmarsh area of San Rafael Bay has been reduced to practically
16 nothing due to diking and filling of the entire waterfront. Only small
17 areas of healthy marsh remain (see Figure 8 for original configuration of
18 San Rafael Bay). At present, in the proposed area of the East San Rafael
19 redevelopment there are two small saltmarshes. One is part of Pickleweed
20 Park on its eastern side and the other, which is very tiny, is
21 directly across the San Rafael channel on the Seastrand property.

22 Healthy saltmarshes typically have a vertical hierarchy of dominant plant
23 species from the waters edge to the elevation where saltwater influences no
24 longer dictate the hierarchy of plant dominance. Typically cordgrass
25 (*Spartina foliosa*) occurs at the edge of the water and is often partially
26 submerged. Above cordgrass, pickleweed (*Salicornia* sp.) and salt grass
27 (*Distichlis* sp.) are usually found, (B-3). Also frequently found at higher
28 marsh levels is *Jaumea* and where freshwater meets saltwater the alkali bull-
29 rush (*Scirpus* sp.) and cattails (*Typha* spp.) are typical.

Biology
VI-E-2

1 Cordgrass is the most important of the saltmarsh plants (B-4). It has
2 fantastically high productivity. Detritus derived from its production pro-
3 vides a food source for the organisms of the mudflats and water column.
4 Many birds and small mammals, including the endangered saltmarsh harvest
5 mouse, make direct use of cordgrass seeds and/or vegetation. Because of its
6 tall, dense growth characteristics cordgrass provides excellent cover for
7 many secretive marsh birds and mammals.

8 Any development plans which call for further depletion of the San Rafael
9 saltmarshes should be closely scrutinized. As with mudflats, the loss of
10 saltmarshes has wide reaching effects on the Bay and should be minimized.

11 3. Modified Lowlands and Brackish Ponds

12 By far the largest portion of the redevelopment area in East San Rafael
13 consists of modified lowlands and brackish ponds. The diked and filled
14 portion from Spinnaker Point to San Quentin Point is almost entirely
15 modified lowland. Three ponds or lagoons are located in this expanse of
16 lowlands.

17 Adjacent to the existing saltponds there are extensive stands of pickle-
18 weed (*Salicornia* sp.). Pickleweed provides cover for small mammals and
19 birds, but is not heavily used as a source of food. At somewhat higher
20 elevations saltgrass (*Distichlis spicata*) is present. This low grass is
21 fed upon by some birds and provides cover for small mammals. At still higher
22 elevations than saltgrass *Jaumea carmosa* is found.

23 In areas filled above the influence of saltwater the preponderance of
24 plants are exotic grasses. Some of the forms of plants found in this area
25 are listed in Appendix B-II. This weedy area provides food and cover for
26 many species of songbirds and small mammals.

27 Due to active filling of the area much of the site south of the Spinnaker
28 Point property has little natural habitat value for nesting water fowl.
29 A sanitary landfill provides some habitat for seagulls and rats. Demolition
30 debris covers a large portion of the area providing cover for lizards and
31 small mammals.

Biology
VI-E-3

The saltponds while not particularly aesthetically pleasing are extensively used by waterfowl and wading birds. Several species of ducks including mallards, cinnamon teals, and scaup nest in the area. Many more species rest and feed on the ponds. Wading birds, terns and seagulls make heavy use of the ponds for feeding and resting. Large numbers of these birds can always be seen using the area. Appendix B-III lists the birds seen in the area by several observers.

Usage by mammals of the low lying areas and saltmarshes is not as evident as by the birds but nonetheless is extensive. Small rodents are commonly found even where cover is minimal. Skunks, racoons and deer occur in denser cover. Appendix 4 lists the mammals which are found in the vicinity of the East San Rafael area.

4. Mixed Hardwoods

The mixed hardwoods habitat is limited to San Quentin Ridge. Though not as productive as mudflats or saltmarshes the hardwoods are more aesthetically pleasing and hence this habitat is often the most vociferously defended by the public. Characteristic trees include the black oak, live oak, madrone, and California laurel.

A diverse assemblage of animals is found in the hardwoods. Songbirds, birds of prey, large and small mammals, reptiles, and amphibians all occur here. Some of the more characteristic mammals are deer, skunks, grey squirrels, and moles. Appendix B-IV lists the mammals of the area, while Appendix B-V lists reptiles and amphibians.

Since the hardwoods will be affected by the plan the least of all the habitat types discussed in this report, they have received only cursory attention. However, this is in no way meant to imply that their value is less or that they are less sensitive to perturbations.

Biology
VI-E-4

RARE AND ENDANGERED SPECIES

A number of rare and endangered species of plants and animals have been identified in Marin County and around San Rafael. Many of these organisms are obscure, (for example, landsnails, and many of the rare and endangered plants), and require an expert to determine whether they are present or not. Others are rather well known, especially the birds, and any knowledgeable layman could verify their existence. Both categories will be briefly discussed below.

At the time of this writing no known rare and endangered species have been found to inhabit the East San Rafael Plan Area. The impact statement for the San Quentin landfill (B-5) stated, "every inch of ground (was) covered" and no endangered species were found. This is understandable since most of the lowland area is highly disturbed. The few patches of original salt-marsh left are too small to harbor the clapper rail or saltmarsh harvest mouse. However the hillside of San Quentin Ridge has not been adequately searched. Any development plans for that area would need to include an investigation for rare and endangered species in the mixed hardwoods.

The clapper rail and the saltmarsh harvest mouse are the two most widely known rare and endangered species of the Bay periphery. Both these species require extensive saltmarsh tracts, which are not present at San Rafael. Diking and filling which occurred years ago destroyed any habitat for them that may have existed.

Other lesser known rare animals that are known to occur in the Marin area are discussed in the following paragraphs.

The white-tailed kite is making a strong comeback from near extinction, while still uncommon, it has been seen on the site. Its habitat would be little affected by the development. The burrowing owl is quite rare. This bird actually benefits by diking as it builds burrows in dikes and feeds on the rodents which occur on them. It is known that there are burrows in the East San Rafael dikes.

Biology
VI-E-5

1 There are several lesser known rare and endangered species whose habitat
2 coincides with the vicinity of the proposed development. One of these is
3 the tidewater goby (Eucyclogobius newberryi) which is reported to be common
4 in Corte Madera Creek (B-2) so might also be found in San Rafael Creek.
5 It is not likely to be adversely affected by the project.

6
7 In a previous impact statement prepared for the San Rafael General Plan it
8 was stated that the endangered bay mussel would not be seriously affected
9 by the project because it is not suited to the existing conditions around
10 the San Rafael marshes (B-6). Other literature fails to corroborate this
11 statement. Since there are several mussels indigenous to the San Rafael
12 Bay it is not known definitely which species was described as endangered.

13
14 Another mollusc whose status is unknown in the vicinity of the proposed
15 project is the California brackish water snail (Trynolia imitator). This
16 gastropod is on the Federal Register as being an endangered species but
17 nothing could be found about the range of its habitat inside the San
18 Rafael Bay.

19
20 A large number of rare and endangered plant species was listed by Duncan and
21 Jones (B-6) as occurring in the San Rafael area. Few, if any of these
22 species will be found in the lowlands portion of the project area due to its
23 highly altered nature, but some could be found in the mixed hardwoods area
24 and riparian habitat. See Appendix 6 for a complete list of rare and endangered
25 plant species of the San Rafael Area.

26
27 Adverse Impacts: The major adverse impacts on the biology of the East San
28 Rafael area have already occurred. These are the diking and filling of
29 marshes, actions which destroyed most of the natural habitat. Small patches
30 of saltmarsh, mudflats, and the mixed hardwood area of San Quentin Ridge
31 are all that remain that are genuinely worthy of protection. Some of the
32 existing salt ponds could be upgraded into aesthetically and biologically
33 valuable habitat, but at this moment they provide only moderately valuable
34 wildlife habitat. Continued development of the area for housing and commer-
35 cial purposes will further diminish the wildlife habitat value of the area.

Biology
VI-E-6

1 Existing weedy open space provides cover for a number of adaptable animals.
2 Mammals such as rabbits, mice, and skunks are found and quail, doves,
3 meadow larks and numerous other bird species are found in profusion in such
4 areas. Most of the habitat which supports these species in East San Rafael
5 will be lost through the East San Rafael development plans. Since this
6 type of habitat is not at all uncommon, such losses are not considered
7 serious.

8
9 The main concern of further development of the East San Rafael area is the
10 impact that it will have on the adjacent remaining native habitat. Human-
11 related activities such as lawn fertilization, car washing, oil and grease
12 runoff from the streets, dogs and cats invading the peripheral areas and
13 numerous other individual actions often have deleterious consequences on the
14 natural surroundings of a community.

15
16 The mudflats surrounding the project area are very susceptible to pollution.
17 Urban runoff, if not carefully controlled, could virtually destroy the
18 near-shore mudflat inhabitants. Silt, oils and greases, and fertilizers
19 all act to depopulate the mudflats. If the mudflat organisms are killed,
20 the birds will cease using the area and an aesthetic resource will also
21 be lost.

22
23 Saltmarshes exert a moderating influence along the shoreline. They absorb
24 wave shock and act as a sediment trap. They absorb nutrients and toxicants,
25 provide a food source for many animals, and cover for others. Any human
26 encroachment on saltmarshes can be considered a seriously adverse impact.
27 The proposed Seastrand South development would have encroached on the sole
28 surviving saltmarsh of any size in the San Rafael area. The project as
29 proposed will preserve the marsh proper while building close to its edges.
30 This closeness would have exerted a negative impact on the marsh even though
31 it is not physically destroyed. Now that this project has been dropped
32 from the Plan, the negative impact upon this area will be greatly reduced.
33 With the preservation of this marsh and the marsh in the Seastrand North
34 project and opening these areas to tidal influence, the quality of native
35 wetlands habitat in the proposed project will greatly increase, mitigating
36 much of the loss of other partially altered wetlands habitats.

Biology
VI-E-7

1 Marina construction and operation has an entire suite of negative impacts
2 associated with it. If it is assumed that the marinas will attract more
3 boats to the area than presently exist, the impacts will be even more severe.

4
5 The major adverse impacts of the inboard marina are not so much due to
6 direct habitat loss by excavation, but instead lie with the peripheral
7 effects of construction and operation. As mentioned above, the proposed sites
8 of construction are dominated by highly modified grassland, which could, by
9 no means, be construed as native habitat. Hence it has much lower preserva-
10 tion priority than would have native vegetation.

11
12 Construction and maintenance activities which adversely impact the sur-
13 rounding mudflats and/or salt marshes need to be minimized and mitigated.
14 Excessive siltation which might accompany construction could suffocate a
15 large number of benthic animals. Channel dredging will permanently remove
16 a portion of the valuable mudflat habitat and the associated siltation could,
17 at least temporarily, destroy a much wider area.

18
19 After construction of the proposed marina, a number of continuing adverse
20 impacts will be associated with their operation. Small scale fuel and oil
21 spills will occur with regularity and an occasional larger spill may be
22 expected. Waves generated by boat traffic will continually agitate the
23 shoreline, potentially eroding the saltmarsh and causing siltation problems
24 on the mudflats. Contaminants such as detergents, paints, solvents, and
25 other compounds will be potential problems.

26
27 Sanitary and bilge wastes are illegal to dump overboard. However it is
28 difficult to enforce this prohibition with sports boats and it is almost
29 certain to occur to some degree. The exact magnitude of this problem is
30 impossible to predict.

31
32 Storm water runoff will introduce greater amounts of oils and greases into
33 the surface waters due to the presence of the marinas. This is due to the
34 influx of vehicles particularly on weekends which will be associated with
35 the marina which otherwise would not be present.

Biology
VI-E-8

1 Periodic maintenance dredging will be required to keep the channels open.
2 To a lesser extent dredging will also be required inside the basins. Silta-
3 tion which accompanies dredging exerts a strong adverse impact on the
4 biological community. Siltation is not the only problem associated with
5 disturbing the bottom muds. Refractory contaminants such as heavy metals,
6 pesticides, and petroleum can be remobilized, presenting a potential threat
7 to the biota.

8
9 Placement of dredge spoils from the harbor construction and channel dredging
10 is potentially the most significant impact of the construction (connecting
11 the harbor to the San Rafael Canal). These dredging spoils will be
12 located on the commercial lands and parking areas which constitute part
13 of the Marina site.

14
15 The presently existing stormwater retention ponds have moderate habitat
16 value. With the development of the area these ponds, and any others to
17 be subsequently constructed, may be expected to have such poor water quality
18 as to be of little wildlife value unless special provisions are made to
19 provide supplementary water. This will be due to pollutants washing into
20 them from lawns and streets which will then be concentrated because of the
21 ponds' poor flushing characteristics.

22
23 Of the habitat types, the mixed hardwoods should be affected the least
24 adversely since there are no plans to alter the present configuration of the
25 land on which they stand. They could, however, be injured by additional
26 exhaust emissions from automobiles and possibly by emissions from industries.

27
28
29 Beneficial Impacts: Any improvements in the circulation of the brackish ponds
30 which are brought about as a result of open space measures associated with
31 the proposed housing developments could be considered as beneficial. Tidal
32 flushing, coupled with minimal landscaping and wildlife protection could
33 add measurably to the habitat value of ponds. Cordgrass and alkali bull-
34 rushes could be introduced, thereby providing cover needed for the clapper
35 rail and the saltmarsh harvest mouse.

Biology
VI-E-9

The proposed harbor could provide a habitat for sports species of fishes which might otherwise be unavailable to shore anglers. This small increase in habitat would in no way mitigate losses incurred by the construction.

Mitigation Measures: A major aspect of the Plan which needs mitigation is any disturbance and loss of the mudflats by channel dredging and harbor construction.

An ideal mitigating measure for the habitat destruction caused by harbor construction and dredging would be to create a saltmarsh in the basin to the south of Spinnaker Point. At this time there are plans to preserve approximately 55 acres of the Holiday Magic property as wetlands with the intention of opening this area to tidal influence. In addition two drainage lagoons and three ponding areas will be retained.

The use of native landscaping and buffering of the ponding areas and lagoons would also enhance water fowl habitats and partially compensate for losses due to project development.

Other mitigation measures for off-setting the destruction caused by the construction of housing and the marina have been developed by the City of San Rafael in a Wildlife and Public Open Space Mitigation Plan. Most of these mitigations have been included in the Plan. They include upgrading Seastrand marsh, opening it to tidal influence; the purchase of the Seastrand South property as an addition to Pickleweed Park and establishing on part of it a lagoon/wetland open to tidal influence; establishing a permanent lagoon area in Spinnaker Point and landscaped in parts with indigenous vegetation; acquiring and preserving a 40 acre parcel north of Spinnaker Point at the mouth of the San Rafael Canal; the planting of pickleweed along portions of shoreline near entrance to Marina in non-boat berth areas; preserving about 55 acres of the lagoon area (Holiday Magic property) south of Spinnaker Point as marsh land, and lastly, the preservation and improvement of several storm drainage ponds south of Spinnaker Point. These measures tend to indicate that the City of San Rafael in its Redevelopment Plan has attempted to mitigate the loss of and destruction of existing habitats by greatly improving other partially altered wetlands and in acquiring other wetlands for permanent preservation.

Biology
VI-E-10

APPENDIX B-1

Mud Flat Animals of San Rafael Bay

A. Mollusca

1. Mya arenaria -- soft-shelled clam.
2. Tapes semidecussata (japonica) -- Japanese littleneck clam
3. Macoma inconspicua -- inconspicuous clam
4. M. nasuta -- bent-nosed clam
5. Nassarius obsoletus -- mud snail
6. Modiolus demissus -- ribbed horse mussel
7. Ostrea lurida -- native oyster

B. Crustacea

1. Cancer magister -- Dungeness crab
2. Crangon franciscorum -- bay shrimp
3. Photis californica -- amphipod
4. Corophium sp. -- amphipod
5. Upogebia caupo -- ghost shrimp

C. Fishes

1. Clevalandia ios -- arrow goby
2. Porichthys notatus -- plainfin midshipman
3. Gillichthys mirabilis -- longjaw mudsucker
4. Platichthys stellatus -- starry flounder
5. Leptocottus armatus -- staghorn sculpin

Biology
VI-E-11

APPENDIX B-II

Reptiles and Amphibians Probably Found in the Spinnaker Point Area

1. Western Fence Lizard
2. Western Skunk
3. San Francisco Alligator Lizard
4. Rubber Boa
5. Pacific Ring-neck Snake
6. Sharp-tailed Snake
7. Western Yellow-bellied Racer
8. Gopher Snake
9. California Kingsnake
10. Pacific Garter Snake
11. Coast Garter Snake
12. Tiger Salamander
13. Giant Pacific Salamander
14. California Newt
15. Red Salamander
16. Arboreal Salamander
17. Black Salamander
18. Pacific Tree Toad
19. Red-legged Frog
20. Yellow-legged Frog

Biology
VI-E-12

APPENDIX B-III

Birds seen along the San Rafael Waterfront from Spinnaker Point to San Quentin Point*

Species	Comment
Common Loon	
Red-throated Loon	
Horned Grebe	
Eared Grebe	
Western Grebe	
Pied-billed Grebe	Nesting in area
Brown Pelican	
Double-crested Cormorant	
Great Blue Heron	Rare in the area; one year, 1970, nesting on W. Marin Island.
Little Blue Heron	Rare
Common Egret (Great Egret)	Nesting on W. Marin Island
Snowy Egret	Nesting on W. Marin Island
Black-crowned Heron	Nesting on W. Marin Island
Yellow-crowned Heron	Roosting on W. Marin Island; Rare, Immature.
White Ibis	Rare, Roosting on W. Marin Island
Canada Goose	
Mallard	
Pintail	Nesting in area
Cinnamon Teal	
American Wedgeon	
Canvasback	
Greater Scaup	
Lesser Scaup	
Common Goldeneye	Nesting in area
Bufflehead	Nesting in area
Surf Scoter	
Ruddy Duck	

Observation made by Aubrey Burns of Marin Audubon Society
Biology
VI-E-13

AD-A071 859 CORPS OF ENGINEERS SAN FRANCISCO CALIF SAN FRANCISCO--ETC F/6 6/6
EAST SAN RAFAEL BAYLANDS DEVELOPMENT REGULATORY PERMIT APPLICAT--ETC(U)
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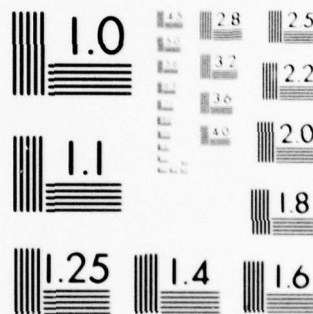
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3 OF 4

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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

HABITATS		1913-1916	
		biology	1913-1916
Raccoon	Procyon lotor	X	
Striped Skunk	Mephitis mephitis	X	
Spotted Skunk	Spillogale gracilis	X	
California Brush Rabbit	Syllilagus bachmani	X	
Muskrat	Ondatra zibethicus	X	
Gray Fox	Urocyon cinereoargenteus	X	
Ca. Meadow Mouse	Microtus californicus	X	
Salt Marsh Harvest Mouse	Reithrodontomys raviventris	X	
Valley Pocket Gopher	Neurotrichus gibbsii	X	
Shrew Mole	Sorex vagrans	X	
Vagrant Shrew	Odocoileus columbianus	X	
Coast Blacktail Deer	Lepus californicus	X	
Blacktail Jack Rabbit	Didelphis marsupialis	X	
Common Opossum	Canis latrans	X	
Coyote	Eutamias sonoriensis	X	
Sonoma chipmunk	Peromyscus maniculatus	X	
Deer mouse	Lynx rufus	X	
Bobcat	Spermophilus beecheyi	X	
Western Grey Squirrel	Sciurus griseus	X	
Herman Kangaroo Rat	Dipodomys heermanni	X	
Dusk Footed Wood Rat	Neotoma fuscipes	X	

HABITATS

	grass	water	marsh	shrub	riparian	hardwood
Western Harvest Mouse	X					
Long Tailed Weasel				X		
Trowbridge Shrew				X		
Sorex trowbridgii				X		
Bassariscus astutus				X		
Ringtailed Cat				X		
Fringe-tailed myotis				X		
California Myotis				X		
Yuma Myotis				X		
Long Eared Myotis				X		
Hairy Winged Myotis				X		
Silver Haired Bat				X		
Big Brown Bat				X		
Hoary Bat				X		
Red Bat				X		
Long-eared Bat				X		
Pallid Bat				X		
Mexican Free-tailed Bat				X		
Cougar (mountain lion)				X		
Felis concolor				X		
Broad-handed Mole				X		

APPENDIX B-V

Plants Common to Lowlands of San Rafael

1. Wild anise - Foeniculum vulgare
2. Curly dock - Rumex crispus
3. Lupine - Lupinus spp.
4. Wild mustard - Brassica geniculata
5. Thistle - Cirsium edule
6. Acacia - Acacia melanoxylon
7. Coyote brush - Baccharis pulularis
8. Wild radish - Raphanus sativus
9. Clover - Trifolium spp.
10. Bristly ox tongue - Picris echinodes

Biology
VI-E-18

APPENDIX B-VI*

Unique, Rare or Endangered Flora

- #1 - Plants on "Marin Rare and Endangered Botanical Species" list. May also be endemic to Marin County or Planning Area.
- #2 - Plants rare or uncommon in Marin County according to Marin Flora. (Howell, 1949), but not on "Marin Rare and Endangered Botanical Species" list. May also be endemic to Marin County or Planning Area.
- #3 - Plants rare or uncommon to the Planning Area although they may be widely distributed in Marin County and/or California.

Cheilanthes intertexta (Coastal lip fern) - #2

- . rare in crevices of protecting rocks
- . San Rafael Hills

Equisetum kansanum (summer scouring rush) - #2

- . known only from Lucas Valley and Little Carson Canyon (Mt. Tamaipais)

Selaginella wallacei (Wallace moss fern) - #3

- . uncommon but widely distributed in county where it reaches its southern limit;
- . shady or sunny rocks near limits of redwood groves
- . San Rafael

Sequois sempervirens (Redwood) - #3

- . unusual as native stands
- . pockets occur in San Rafael Hills

Typha glauca (cat-tail) - #3

- . Bay marsh along San Rafael; known only from San Rafael marshes and Mt. Tamaipais

Sanittaria latifolia (tule potato) - #2

- . fresh water marshes, rare in Marin County
- . Santa Venetia

Aristolochia californica (California pipe-vine) - #3

- . widespread but uncommon; wooded or brushy hills and valleys
- . San Rafael

Chenopodium multifidum (goosefoot) - #2

- . along roads and waste places
- . introduced from South America and rare in San Rafael

Calandrinia breveri (non) - #2

- . rare in gravelly soil on brushy slopes, becomes abundant with fires
- . San Rafael Hills

Biology
VI-E-19

- 1 Clematis lasiantha (virgin's bower) - #2
- 2 . rare on dry slopes, frequently trails over shrubs in the chaparral
- 3 . San Rafael
- 4 Brassica Kuber (Charlock) - #2
- 5 . rare in weedy places around habitation and along roads
- 6 . San Rafael
- 7 Ribes Menziesii var. Victoris - #2
- 8 . endemic, rare on wooded flats and northerly slopes
- 9 . San Rafael Hills, Big Rock Ridge
- 10 Vicia exigua (Vetch) - #3
- 11 . gravelly soil of brushy slopes or rarely clay soil of open woods,
- 12 . widespread but uncommon
- 13 . San Rafael Hills
- 14 Geranium carolinianum - #2
- 15 . rather rare in more or less shady places on open or woody slopes
- 16 . San Rafael Hills
- 17 Arctostaphylos viscidula (manzanita) - #2
- 18 . Southernmost station in Coast Ranges
- 19 . known only from north side of Black Canyon in San Rafael Hills
- 20 Cryptantha microstachys (White forget-me-not) - #2
- 21 . In Marin County, has been found only in brush on north side of Black Canyon
- 22 Plagiobothrys tenellus
- 23 . rare in open places in gravelly soil
- 24 . San Rafael Hills, Big Rock Ridge
- 25 Trichosema lanceolatum (blue crabs) - #2
- 26 . rare on dry open hill sides
- 27 . San Rafael Hills
- 28 Stachys albugoides (hedge nettle)
- 29 . rather rare in clay soil of low valley lands
- 30 . San Rafael
- 31 Antirrhinum hookerianum (snap dragon) - #2
- 32 . rather rare on warm brushy slopes in loose rocky soil, abundant after fires
- 33 . San Rafael Hills
- 34 Penstemon heterophyllus var. Purdyi
- 35 . rare on high ridges in open shallow soil
- 36 . San Rafael Hills
- 37 Orobancha uniflora (brown rope) - #2
- 38 . apparently rare being known only from three stations in County
- 39 . San Rafael Hills

Biology
VI-E-20

- 1 Githopsis specularioides - #3
- 2 . widespread but uncommon, in gravelly or clayey soils of open woodland
- 3 . and brushy slopes
- 4 . San Rafael Hills
- 5 Erigeron foliosus var. Harvegii (fleabane) - #3
- 6 . uncommon, grassy places on brushy or wooded slopes
- 7 . San Rafael Hills; near Chinese Camp
- 8 Pleurapogon hookerianus (senaphore grass) - #1
- 9 . rare in grassy places or meadows on edge of redwoods
- 10 . not sites, but could be in San Rafael Hills
- 11 Stylocine amphibola - #3
- 12 . occasional on open grassy slopes or in chaparral
- 13 . San Rafael Hills, Big Rock Ridge
- 14 Stylocine gnaphalioides
- 15 . rare, known in Marin County only from gravelly soils on a steep canyon
- 16 . side in San Rafael Hills. Only one other station has been reported for
- 17 . species in State.
- 18 Melica Geyeri var. aristulata (melicgrass)
- 19 . widespread in dry woods and brushy places
- 20 . San Rafael Hills (endemic to County, but widespread)
- 21 Cordylanthus mollis (none) - #1
- 22 . rare, only known in saltmarshes bordering the northern reaches of San
- 23 . Francisco
- 24 . San Rafael
- 25 Eriogonum canium (wild buckwheat) - #1
- 26 . Shallow soil of rocky slopes on shade or serpentine
- 27 . San Rafael Hills
- 28 Polygonatum Marinense (none) - #1
- 29 . Saltmarshes of San Francisco Bay
- 30 . could be in San Rafael study area because it has been cited near Mill
- 31 . Valley and just north of San Rafael city.
- 32 Trifolium amenum (clover)
- 33 . open flats or low hills in clay soil; endemic to counties bordering
- 34 . San Francisco Bay
- 35 . although only cited at Tomales and Tiburon, could be in any grassland
- 36 . of endemic area, thus including San Rafael study area
- 37 Linanthus pygmaeus (none) - #1
- 38 . gravelly soil of steep canyon side in chaparral
- 39 . only known station in Marin County is San Rafael Hills
- 40 + endemic to Marin County

Biology
VI-E-21

1 Allisima Plantago - aquatica var. trivale (water plantain) - #3

2 . occasional in marshy places

3 . Santa Venetia

4 Ribes californicum (California gooseberry) - #3

5 . occasional on wooded flats or open hills

6 . Lucas Valley

7 Cercocarpus betuloides (Mountain Mahogany) - #3

8 . occasional brushy hillsides or dry rocky slopes in chaparral

9 . San Rafael Hills

10 Romanzoffia californica (mist maiden) - #3

11 . occasional on moist and shaded rocky slopes and bluffs

12 . Big Rock Ridge

13 Amsinckia intermedia (fiddle neck) - #3

14 . along roads, on edge of brush, and in grassy fields,; widespread but not

15 very common locally

16 . San Rafael Hills, Big Rock Ridge

17 Verbena robusta (vervain) - #3

18 . occasional around seepages or along the course of ephemeral vernal pools

19 . San Rafael Hills

20 Plectritis macrocera - #3

21 . occasional in grassy plain

22 . Big Rock Ridge

23 Lilaea scillioloides (flowering quill wort)

24 . low places in fields and along roads where water stands in the spring

25 . between Santa Venetia and China Camp

26 * Source: City of San Rafael, General Plan, Appendix E.

Biology
VI-E-22

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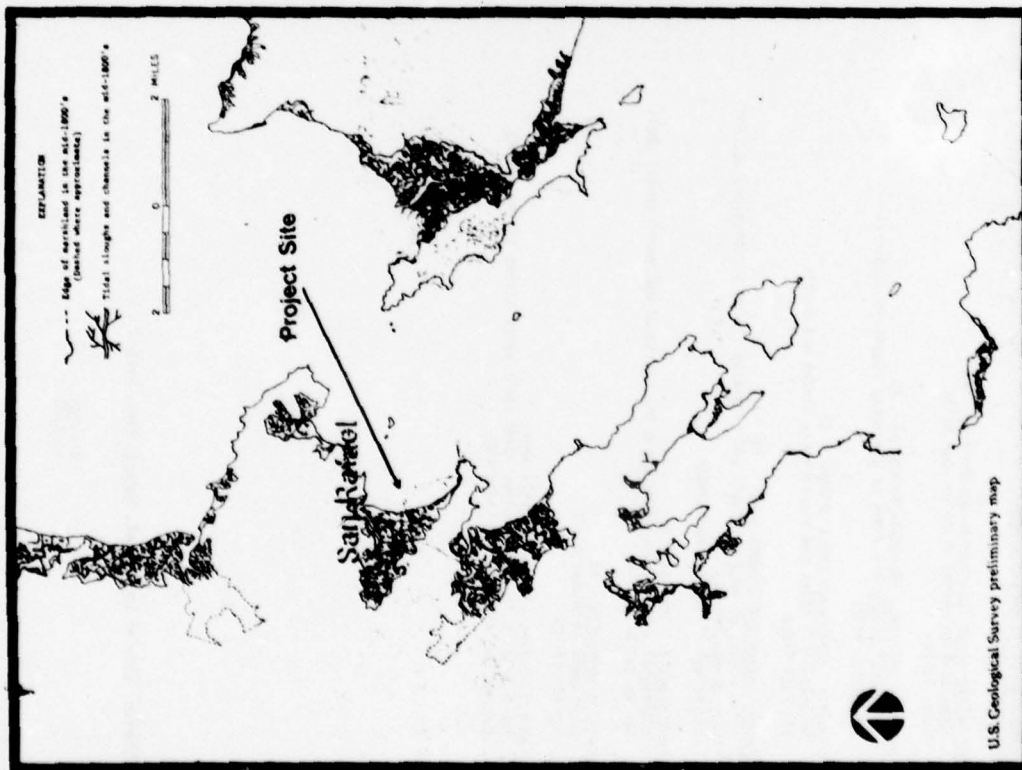
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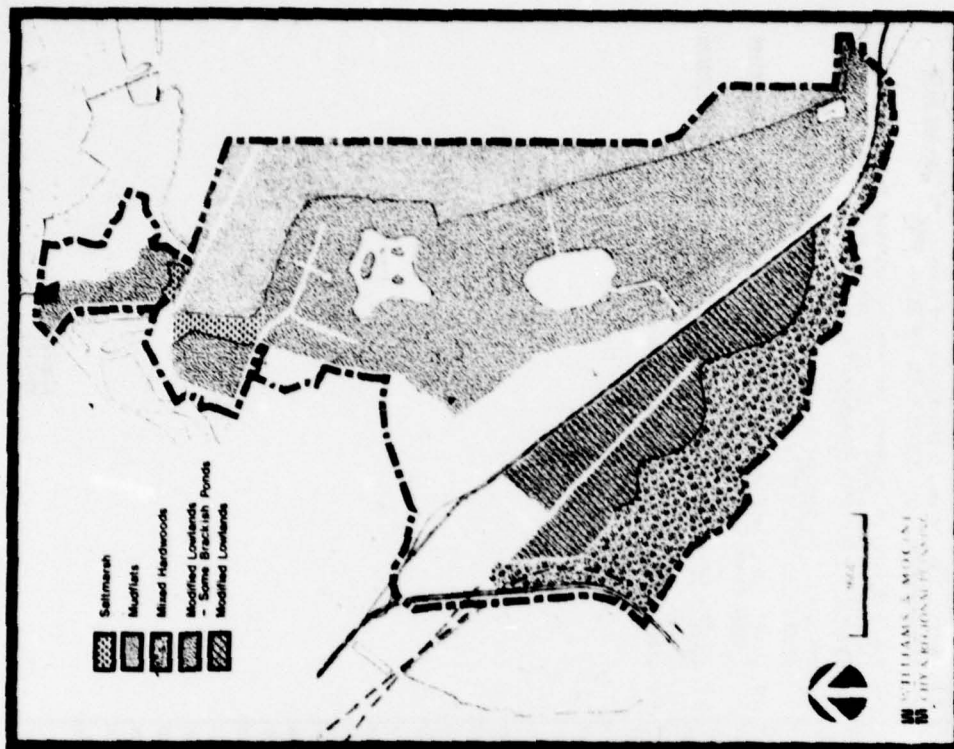
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Biology
VI-E-23



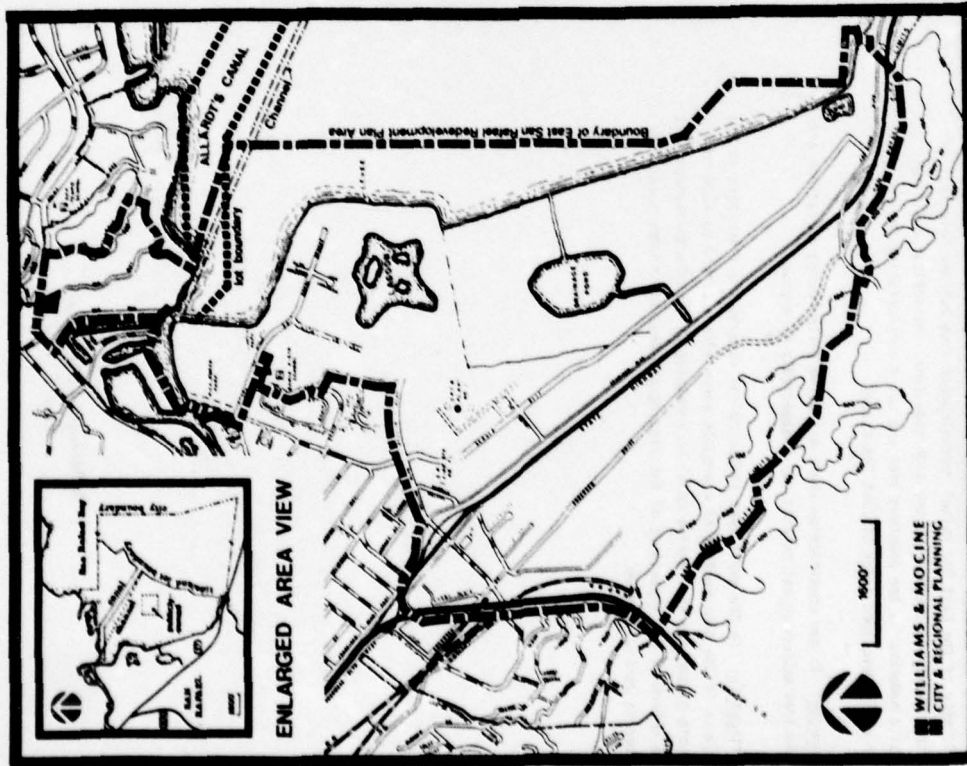
Historic Marshlands 8

IV-E-24



Biological Habitats 9

IV-E-25



Privately Held Tideland Lot Boundaries 10

IV-E-26

F. Visual and Aesthetic Conditions

Existing Conditions: The developed portion of the East San Rafael Plan Area lacks unity. Its interior circulatory system is fragmented. Its landscaped areas have no effect on the area as a whole.

On either side of the industrial wedge which forms the spine of the East San Rafael environment are valuable open space resources. The rolling green slopes of the hillside provide an unspoiled visual corridor to the southwest for motorists on S.R. 17. To the northeast a panorama unfolds of vacant bayfront land and the bay. The freeway is not elevated but the industrial area, while visible, is sparse enough that it does not obliterate the rest of the view.

Impacts: The intent of the East San Rafael Plan is to visually improve the industrial area by enforcing strict design standards. In addition, the open spaces on either side of the industrial sector will be preserved and enhanced. The impacts of the Plan are therefore visually beneficial.

Mitigation: None needed, except in Spinnaker Point and Marina areas, subjects of separate EIR's.

Visual & Aesthetic
VI-F-1

1 6. Archeological and Historical Conditions

2
3 Existing Conditions: No known archeological sites exist in the immediate
4 vicinity of the East San Rafael redevelopment area but the potential for
5 sites exists anywhere above the high tide line. Historical buildings
6 while numerous in the downtown area are not a consideration in the industrial
7 or newly developed areas of East San Rafael.

8
9 Impacts: In new construction where extensive earth-moving operations are
10 required archeological remains may unexpectedly be exposed.

11
12 Mitigation: In the event that archeological remains are discovered in the
13 course of the construction of a project every effort should be made to
14 avoid disturbing the remains until an archeologist is able to inspect them
15 to determine the importance of the finding and what procedures should be
16 used to deal with them.

Archeological/Historical
VI-G-1

1 H. Land Use Conditions

2
3 Existing Conditions: The East San Rafael Plan Area may be considered as
4 four distinct subareas which are physically separate and yet have some
5 common characteristics. All four subareas are lowlying, partially marshland,
6 and completely diked. All four areas contain some fill and some degree
7 of development activity has occurred although the amount varies from
8 site to site. The subareas are described as follows:

9
10 Seastrand (31.17 acres): Seastrand is separated from the
11 remainder of the East San Rafael Plan Area by the San Rafael Canal on
12 which it fronts and from which it is protected by a dike.

13
14 The west half of the site is flat marshland with a drainage ditch at
15 the extreme west adjacent to Seaway Street on which the houses of the
16 Marina Vista development front. This marsh is diked at four other
17 interior locations so that the marsh portion of the site is broken into
18 five smaller areas. Within these dikes, however, the quality and
19 integrity of the marshland is unaffected and wild flowers and small
20 animal species abound.

21
22 The east half of the Seastrand site is a steep hillside. The
23 east boundary of the site is Bellevue Avenue, about two-thirds of the
24 way up the slope.

25
26 Pickleweed Park (19.5 acres): South of the San Rafael Canal at its
27 entrance is Pickleweed Park. While its north shore faces the
28 Canal, the east shore fronts on the saltmarsh portion of the bay.
29 Both shores are diked. The west boundary is Sorrento Way. The remainder
30 of the site is marshland which has been partially filled. An interior dike
31 has been constructed which separates the south one-third of the site from
32 the rest.

Land Use
VI-H-1

Spinnaker Point (110 acres): Spinnaker Point is the subject of two separate EIRs. See the Spinnaker Point EIR and the Marina EIR. This subarea of the East San Rafael Plan Area is similar to the Seastrand site in that it fronts on the San Rafael Bay and has been completely diked and partially filled. In addition one-third of the site was prepared for development by the installation of utilities and the construction of streets according to the San Rafael Caves Subdivision Plan filed in the Office of the Marin County Recorder in 1963.

The largest subarea is the filled area on both sides of Highway 17 which is bounded on the east by the open spaces of the bayshore and on the west by the open country of the San Quentin Ridge. Much of the East San Rafael Area falls within the "business and industrial review area" of the San Rafael General Plan (approximately 530 acres). Of this land approximately 150 acres are essentially developed, mostly in industrial uses. There are also some retail uses, a postal office, the sanitation treatment plant, the Golden Gate Transit bus yard, the motor movies, and a fire station. These uses are mainly concentrated in the areas served by Bellam Boulevard, Anderson Drive, Simms Street, Francisco Boulevard; and in the rapidly developing McKeon Industrial Park.

The Central San Rafael Redevelopment Plan (CSRRP) recommends development of 50-150 acres of "small and medium size manufacturing, warehousing, and in some cases, office establishments in continuation of (the) existing pattern" in this area. This would result in a total planned industrial area of 248.4 - 384.4 acres. The remaining 141.2 to 241.2 acres of the Business and Industrial Review Area would be available for open space conservation and parks. In the entire East San Rafael Area 295.92 acres are designated as open space. This includes areas in the Spinnaker Point, Seastrand and Pickleweed Park developments.

The following table shows land use acreage totals excluding streets in the

East San Rafael Plan Area:	Industrial	324
	Retail	21
	Institutions	8
	Parking	8
	Housing	31
	Open Space	296
		688
	Streets & Hwys	112
		800

Land Use
VI-H-2

Impacts: The distribution and quantities of land uses in the East San Rafael Area are shown in Map 3 and the Table on p. VI-H-2. An impact which is evident is the obvious lack of housing in the price range which can be afforded by a worker in the industrial area. Also, the large quantity of open space shown (43.5%) is misleading since it is mostly conservation space and not part of the usable public or neighborhood park system. Accessible and usable open space for the existing East San Rafael community will still be deficient unless a suitable land area is acquired by the City and developed for this purpose. See also Spinnaker Point EIR, VI-M-2 (Public Services) for a discussion of standards for neighborhood park acreages which shows that the residential community existing and proposed, will be almost eight acres short of the recommended park lands. The most deficient category will be neighborhood parks.

Mitigation: Two measures would greatly improve the plan: the inclusion of some low-and-moderate income housing in the area and the acquisition of an adequate land area as a neighborhood park rather than housing. The second measure has been incorporated in the Plan as of Final EIR writing.

Land Use
VI-H-3

Transportation and Traffic Conditions

Existing Conditions:

MAJOR STREET SYSTEM

The site comprises the southeast area of San Rafael. It is bordered by the City limits on the south and west, Bellam Boulevard, Playa del Rey and the San Rafael Canal on the north and the Bay on the east. Major streets serving the area include the following:

Bellam Boulevard -- Bellam Boulevard runs in a general east-west direction from Anderson Drive on the west to Playa del Rey on the east. This street will be extended through the Spinnaker Point development and in conjunction with the connecting Catalina Blvd. will provide its principal access point. Major intersections on Bellam Boulevard are at Kerner Boulevard, Francisco Boulevard, the State Route 17 ramps, and Anderson Drive.

The primary function of Bellam Boulevard east of Francisco Boulevard is to provide access to the adjacent residential area. Between Kerner Boulevard and Francisco Boulevard, it is a four-lane, divided roadway with median left-turn storage lanes. At the present there is no traffic striping to delineate the separate lanes. Parking is allowed on both sides of the street. Current traffic volumes east of Francisco Boulevard are about 11,000 vehicles per day, decreasing to 6,600 vehicles per day at Kerner Boulevard. East of Kerner Boulevard, Bellam Boulevard is a 60 foot wide conventional two lane street, with the traffic volume further decreasing to 1,200 vehicles per day.

The intersection of Bellam Boulevard and Francisco Boulevard operates at Levels of Service C to D during peak hours and under existing traffic volumes and control installations. The section of Bellam Boulevard east of Francisco Boulevard, including the intersection at Kerner Boulevard, operates at Level of Service A during the peak period. In this and subsequent descriptions of traffic operation, the concept of level of service will be used. The level of service represents an attempt to relate quality

of traffic flow to quantity of flow. As defined in the Highway Capacity Manual, (T-1) the service level of a given facility is a theoretical traffic volume determined by the physical and operational characteristics of the facility and by stipulated conditions of traffic flow. Flow conditions vary from unrestricted flow at Level A to extreme congestion at Level F. At major intersections (typically the critical points in urban street networks) Service Level C traffic flow is stable, with intermittent but unobjectionable delays during peak hours. At Service Level D, traffic flow becomes more restricted, and delays to vehicles may be substantial during short peaks; however, periodic clearance of queues prevents excessive back-up from developing. Service Level E represents capacity with sustained delays and back-up.

West of the Francisco Boulevard intersection, Bellam Boulevard intersects State Route 17, with a diamond-type interchange providing access to and from both northbound and southbound State Route 17. In addition, access to and from northbound State Route 101 is furnished via the ramps on the north side of this interchange. Bellam Boulevard has sufficient width through the interchange area for two lanes in each direction; however, the lanes are not delineated, so that the pavement width is not fully or efficiently utilized. Stop sign control exists on the northbound off-ramp. At the southbound ramp intersection there is a three-way stop. Under existing traffic volumes and traffic control, this latter intersection is the critical location on Bellam Boulevard. During the afternoon peak period, several of the intersection approaches operate at or near Level of Service E, which is defined as capacity. Especially critical is the southbound State Route 17 (and northbound State Route 101) off-ramp. Queues on this off-ramp frequently extend near the vicinity of the off-ramp nose at the freeway.

West of the State Route 17 interchange, Bellam Boulevard extends another block to Anderson Drive. This section of Bellam Boulevard is a two lane, two-way roadway of variable width, with parking on both sides of the street. In addition, several commercial usages and the post office on the south side have direct access into parking areas along the frontage, with resultant frequent turning movements to and from Bellam Boulevard. A

1 drive-in theater is located on the north side of the street; however, there
2 is little other traffic activity generated by the activities on that side.

3
4 In addition to furnishing access to adjacent commercial development, this
5 section of Bellam Boulevard serves an important traffic circulation function,
6 since it provides access to and from southbound State Route 101. Beyond
7 Anderson Drive Bellam becomes Auburn Street and serves the extensive
8 residential areas to the west. Because of these multiple purposes, it
9 has a current traffic volume of nearly 15,500 vehicles per day. Level of
10 service along this section of roadway is currently estimated to be Level C
11 with periodic drops to Level D during peak hours.

12
13 Anderson Drive -- Northerly of its intersection with Bellam Boulevard,
14 Anderson Drive is a two lane, two-way roadway of variable width. It
15 is relatively narrow and in fairly poor repair along portions of its length.
16 Its primary function is to connect to the frontage road system on the
17 west side of U.S. Route 101. It also provides for movements to and from
18 the U.S. Route 101 southbound on- and off-ramps. Traffic volumes on this
19 portion are approximately 9,700 vehicles per day, and it operates at
20 Level of Service C throughout most of the day, with occasional drops to
21 Level D.

22
23 South of Bellam Boulevard, Anderson Drive extends through a partially
24 developed industrial area, deadending approximately three-quarters of a
25 miles south of the intersections. This portion has a 60 foot roadway
26 section, which is adequate for four lanes; however, it is presently striped
27 only for two lanes. Traffic volumes are highest at 4,000 vehicles per day
28 just south of Bellam Boulevard.

29
30 Kerner Boulevard -- Kerner Boulevard is a two lane, two-way roadway, with
31 a median separating the travel lanes. Separate left turn storage pockets
32 are provided at intersecting cross streets. Parking is allowed on both
33 sides of the street.

34
35 Extensive multiple unit residential development exists on Kerner Boulevard
36 throughout its length between Canal St. and Bellam Blvd. and in the

Trans
VI-1-3

tributary area. It functions both as a collector street connecting to
Bellam Boulevard and Canal Street and as local access to abutting prop-
ties. Traffic volumes are 4,900 vehicles per day. The level of service
along the street and at the above intersections is currently Level A,
with minimal delay occurring only at the stop signs.

Kerner Boulevard extends south of Bellam Boulevard for approximately
one-half mile. This portion of the street is 54 feet wide and is
striped for two traffic lanes. There is scattered industrial development
on the westerly side of the street, and traffic volumes are correspondingly
low at 1,000 vehicles per day.

Canal Street -- Canal Street runs westerly from Kerner Boulevard to Medway
Road, which in turn connects to Francisco Boulevard on the east side of
U.S. Route 101. This section of Canal Street is a 40 foot wide two
lane, two-way roadway, with parking on both sides. The adjacent area is
multiple and single family residential. East of Kerner Boulevard, Canal
Street extends through the northern boundary of the project area as a
divided roadway with a planted median. There is currently no development
along this portion of the street.

The main functions of Canal Street are to provide circulation and access
to the local residential development and, because of its connection into
Medway Road, to also serve as an access route to downtown and northern
San Rafael. It has daily traffic volumes of 5,300 vehicles per day near
the Medway Road intersection. The roadway operates at Level of Service
A or B throughout the peak traffic periods.

Medway Road -- Medway Road extends for several blocks from Canal Street
on the east to Francisco Boulevard on the west, intersecting the latter
at a T-intersection. This street is a two lane, two-way roadway with
parking on both sides. Commercial development extends along Medway Road
throughout its length, so that parking turnover is relatively high. A
supermarket is located on Francisco Boulevard just off Medway Road. As
noted above, it functions as a collector street in conjunction with
Canal Street; it also provides access to the adjacent commercial activities.

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Traffic volumes on Medway Road are 5,800 vehicles per day. With the somewhat greater degree of traffic activity due to the adjacent businesses, the Level of Service along this section of street is Level B to C during the peak hours.

The westbound approach of Medway Road at Francisco Boulevard is controlled by a stop sign. There is relatively heavy cross traffic on Francisco Boulevard, and traffic on Medway Road is sometimes delayed while waiting to turn left, since it must wait for gaps in both directions on Francisco Boulevard. As a result, this intersection operates at Level of Service C to D during the peak period.

Francisco Boulevard -- Francisco Boulevard East is a frontage road paralleling U.S. Route 101 and State Route 17 on the east side from Grand Ave to the San Quentin Interchange. It is a two lane, two-way roadway with restricted parking. On the east side direct access is provided into parking areas in front of the abutting commercial development. Francisco Boulevard East serves as a major circulation element between central San Rafael and the developments to the south along the east sides of U.S. Route 101 and State Route 17.

Traffic volumes on Francisco Boulevard East north of Medway Road are over 14,500 vehicles per day. At these volumes, this section of the street operates at Level of Service C or D during peak hours. Between Medway Road and Bellam Boulevard, Francisco Boulevard East carries somewhat lighter traffic volumes at 11,200 vehicles per day. Peak period operation is in the range of Level of Service B or C. Left turn lanes are provided for southbound traffic at intersecting side streets. The heavy volumes of opposing traffic and the absence of traffic signals to "platoon" this traffic causes some delay to both left turning and side street traffic. This delay is most evident at Medway Road and at Bellam Boulevard, where cross traffic volumes are heaviest.

South of Bellam Boulevard, Francisco Boulevard East extends along State Route 17 to the San Quentin Interchange. The frontage road is a two lane, two-way facility, but is somewhat narrower and generally in poorer repair

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than the sections north of Bellam Boulevard. Although parking is not restricted on the east side of the street, it is really too narrow to accommodate a parking lane. This portion of Francisco Boulevard East provides access to the existing commercial areas, to the industrial area under development south of Bellam Boulevard and to the San Quentin landfill project. Even with these functions, the current traffic is only about 3,500 vehicles per day south of Bellam Boulevard, decreasing to an estimated 1,700 vehicles per day north of the San Quentin Interchange. Operations are at a Level of Service A during peak periods.

Francisco Boulevard West extends along the west side of U.S. Route 101 from Anderson Drive to Rice Drive. This street serves a variety of commercial/industrial uses along the westerly side. It is a two lane facility in fair condition, with an estimated traffic volume of 3,500 vehicles per day.

State Route 17 -- South -- State Route 17 is a four-lane freeway which connects with U.S. Route 101 just north of the Bellam Boulevard interchange. The freeway extends about two miles southerly to the Richmond-San Rafael Bridge, the major connector between Marin County and the East Bay. As previously noted, full service diamond interchanges are located at Bellam Boulevard and at San Quentin. The main function of this segment of freeway is to provide a connection between the Richmond-San Rafael Bridge and U.S. Route 101 to the north. In the vicinity of the proposed project, daily traffic volumes are in the range of 25,500 vehicles per day. (T-2) Freeway operation is at Level of Service A throughout the day.

U.S. Route 101 -- U.S. Route 101 in the vicinity of the project is a six-lane freeway, with a fourth northbound lane between the northbound State Route 17 on-ramp and the central San Rafael off-ramp. This freeway is the primary north-south route throughout the length of Marin County. It carries heavy through volumes between San Francisco on the south and the areas to the north of San Rafael, plus considerable intra-county traffic generated by the communities along its length.

Traffic volumes along U.S. Route 101 just north of State Route 17 are approximately 102,000 vehicles per day. To the south of State Route 17,

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the traffic volumes are somewhat lower at 89,000 vehicles per day. During the peak hours of the day, State Route 101 provides relatively good service under existing traffic volumes. During peak hours, however, there is traffic congestion along several sections of the freeway. In the morning peak period, there is congestion in the southbound direction in the Mill Valley-Corte Madera area to the south and in the central San Rafael area to the north. In the evening peak, the congestion is in the northbound direction, again primarily in the areas described above. In those areas where congestion exists, U.S. Route 101 is operating from Level of Service E (capacity) to Level of Service F (Stop-and-go congestion).

TRANSIT

Bus transit is currently provided in the general project area by the Golden Gate Transit District. The Number 23 bus runs on Francisco Boulevard, Meadway Road, Canal Street, Kerner Boulevard and Bellam Boulevard, and from this area travels to central San Rafael, to San Anselmo and to Fairfax. The Number 30 bus travels essentially the same route in the site area to downtown San Francisco.

Traffic Impact

TRIP GENERATION

Proposed developments in the East San Rafael area include: townhouses, waterside residential units, a marina and related commercial-recreational uses in the Spinnaker Point project; two smaller residential developments at Seastrand North and South*, north and west of the Spinnaker Point area respectively; extensive industrial development on both sides of State Route 17 south of Bellam Boulevard; and park areas along the Bay and in the present Pickleweed Park area. The traffic generation of these developments is estimated as follows:

*Seastrand South residential development was eliminated in favor of community and conservation open space.

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Spinnaker Point

Total trips estimated (while the exact number of dwellings and berths is under revision the number of trips will not vary so much as to affect the model).

6,960

Seastrand

Single Family Residences - 34 units at 9 trips/unit 306 trips

Industrial Area

150.5 acres at 70 trips/gross acre 10,540 trips

Parks

110.0 acres at 5 trips/gross acre 550 trips

The weekend trip generation for the marina and recreational uses will be higher than the average week day. For the marina, the increase will be highest on Sunday, estimated at 6.5 trips/berth, with a daily total of 3,250 trips.^a

TRIP DISTRIBUTION

Trip distributions were made in accordance with the basic trip patterns developed in studies for the San Rafael Redevelopment Area, modified somewhat to reflect the major categories of land uses. (T-3) The distributions were estimated as follows:

Area	Percent of Trips	
	Industrial	Recreational
East Francisco Boulevard	11.0	16.8
East San Rafael	5.5	6.9
West Francisco Boulevard	4.0	11.6
Central San Rafael	5.0	12.4
West of San Rafael	7.5	6.2
U.S. Route 101 South	21.0	25.5
U.S. Route 101 North	29.0	15.5
East Bay (State Route 17)	17.0	5.1
	100.0	100.0

^a This is assuming that approximately 80% of the berths will be in use (500).

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TRAFFIC IMPACT

The impact of traffic generation of the magnitude under consideration is measured on the nearby major streets and highways only, since proportionate increases in traffic diminish below a measurable level as distance and dispersion on the street system increase. The estimates of projected traffic and the percent increments on the adjacent streets are listed in Table I-1 below:

TABLE I-1

Street & Section	Existing Traffic	Development Traffic	Total Traffic	% Increment
Bellam Boulevard - east of Kern Boulevard	1,260	5,320	6,580	422.2
Bellam Boulevard - east of Francisco Blvd.	10,950	8,430	19,380	77.0
Bellam Boulevard - west of SR 17 Int.	15,470	7,010	22,480	45.3
Canal Street - east of Medway Road	5,310	706	6,016	10.0
Medway Road - Canal Street to Francisco Blvd.	5,750	706	6,456	12.2
Anderson Drive - north of Bellam Blvd.	9,700	3,590	13,290	37.0
Anderson Drive - south of Bellam Blvd.	4,130	4,250	8,380	102.9
Francisco Blvd. West - north of Anderson Drive	3,500	420	3,920	12.0
Francisco Blvd. East - north of Medway Road	14,560	3,790	18,350	26.0
Francisco Blvd. East - Medway Rd. - Bellam Blvd.	11,260	2,680	13,940	23.8
Francisco Blvd. East - south of Bellam Blvd.	3,510	1,840	5,350	52.4
Francisco Blvd. East - north of San Quentin Int.	1,000	680	1,680	68.0
Kerner Boulevard - north of Bellam Blvd.	4,890	1,080	5,970	22.1

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Street & Section	Existing Traffic	Development Traffic	Total Traffic	% Increment
Kerner Boulevard - south of Bellam Blvd.	1,000	2,620	3,620	262.0
Kerner Boulevard - north of Francisco Blvd. East	--	1,030	1,030	--
Point San Pedro Road - west of Sea Way	13,300	306	13,606	2.3
USR 101 - North	102,000	6,200	108,200	6.1
USR 101 - South	89,000	3,800	92,800	4.3
SR 17 - South	25,500	1,900	27,400	7.1

Although the weekend traffic generated by the marina complex and other recreational uses will be higher than the average week day traffic, it will be offset by the lower generation of the residential and industrial areas. The heaviest overall traffic volumes, therefore, are assumed to occur during the week day evening peak hour. It is noted that during this period, the contribution of marina and recreational trips will be correspondingly low.

The heavy proportionate increases in traffic will occur on those streets where current volumes are low and where relatively high development of adjacent properties is proposed. They include Bellam Boulevard east of Francisco Boulevard East, Anderson Drive south of Bellam Boulevard, Kerner Boulevard south of Bellam Boulevard, and Francisco Boulevard East north of the San Quentin Interchange. For each of these, however, the projected volumes are within the capacities of the existing roadway sections, and an acceptable level of service can be maintained.

The most critical location in the entire development area will be Bellam Boulevard west of Francisco Boulevard East because of the existing congestion through the State Route 17 and USR 101 interchanges. Under existing roadway geometrics, and the projected traffic increase of almost 50 percent, this street will be operating at Service Level E for extended periods during the morning and evening.

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On Canal Street and Madway Road, volume increases are about 706 vehicles per day, representing an increase in the 10 percent range. The total projected volumes on Madway Road are approximately 6,000 vehicles per day, and operational conditions will not be appreciably affected on either street.

The largest projected increases on Francisco Boulevard East will be 26 percent northerly of Madway Road and 24 percent between Madway Road and Bellam Boulevard. Although these proportionate increases are relatively low, the impacts will be more severe because of the existing congested conditions during peak hours. The result will be a commensurate extension of periods of Service Level D operations. South of Bellam Boulevard, traffic on Francisco Boulevard East decreases significantly.

Kerner Boulevard will be extended southerly parallel to Francisco Boulevard East, to connect to it north of the San Quentin interchange. It is anticipated that most of the industrial development between Kerner Boulevard and Francisco Boulevard East will have access oriented to Kerner Boulevard to take advantage of the higher capacity of that street as compared to the substandard section of Francisco Boulevard East. Projected volumes on Kerner Boulevard are low for the existing and future roadway sections. The same is true for Anderson Drive south of Bellam Boulevard. The extension of this street will provide an alternative route to State Route 17 and would be used as such by a portion of traffic from the southern part of the development area.

On the State Route 17 freeway, the increase in daily traffic is estimated at 7.5 percent; this increase will have no effect on the current Service Level A operations. Since traffic flow characteristics on freeways differ from those on conventional streets, levels of service are expressed in terms of flow stability and operating speeds. At Service Level A, flow is free and prevailing speeds are at the limit. On U.S. Route 101, the actual increment during the peak hour will probably be less than the 4-6 percent average daily increment listed because the traffic congestion on the

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freeway will divert the shorter project trips to local streets, and because the element of marina and other recreation-oriented trips during the evening peak period are low. The freeway does and will continue to operate at Service Level D during peak hours, with flow approaching instability and operating speeds at or below 40 miles per hour.

INTERSECTIONS

The critical spots in the operations of the street system are the inter-sections. The major street intersections and freeway interchanges are listed below, along with existing entering peak hour traffic and the peak hour traffic generated by the new development.

TABLE I-2

Intersection	Intersection Traffic Increments			% Service Inc.
	Existing Peak Hour	Development Peak Hour	Total Peak Hour	
Bellam Blvd. and Anderson Drive	1,720	1,090	2,800	62.8 C-0
Bellam Blvd. and SR 17	2,480	1,790	4,270	72.2 E
Bellam Blvd. and Francisco Blvd.	2,190	1,420	3,610	64.8 D
Bellam Blvd. and Kerner Blvd.	690	1,070	1,760	255.0 A
Francisco Blvd. and Madway Road	1,650	140	1,790	8.5 D
Madway Road and Canal Street	620	140	760	22.6 A

As was the case with the street system, the largest traffic increase - Bellam Boulevard and Kerner Boulevard - will have little actual impact because of the tight total volumes and the relatively high standard of intersection geometrics. The same is true of Madway Road-Canal Street and Madway Road-Francisco Boulevard, where absolute volumes or low proportionate increases will not affect current levels of service. At Bellam Boulevard-SR 17 and at Bellam Boulevard-Francisco Boulevard, the 72 and 65 percent increases respectively could cause critical congestion. However, as

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explained in the following section on "Mitigation," a project is underway to improve that section of Bellam Boulevard and to maintain an acceptable level of service, even with the additional traffic. This project will also improve the service level at the Anderson Drive intersection.

OTHER DEVELOPMENT

There is one other proposed project adjacent to the development area that will have a significant impact on Bellam Boulevard west of Francisco Boulevard East. This is a commercial complex located in the area now occupied by the drive-in theater. This area is generally bounded by U.S. Route 101 on the north, State Route 17 on the east, Bellam Boulevard on the south and Anderson Drive on the west. Included in the complex would be a Lucky Store and a GEMCO store. This development would have several significant traffic impacts; first it would generate substantial traffic on Bellam Boulevard and through the various intersections along that street, and second, most of the traffic would be turning in and out of the access driveways tentatively proposed on Bellam Boulevard. Although the impact of traffic generated by these two projects will be significant on the adjacent street systems, the specifics are beyond the scope of this report.

Mitigation Measures

BELLAM BOULEVARD IMPROVEMENT

The City of San Rafael and the State of California intend to enter into a cooperative project to improve Bellam Boulevard from Anderson Drive on the west to Francisco Boulevard on the east. This project, which would be financed by a combination of city, state, and federal funds, will be advertised in Spring 1977 at the earliest. (T-4) The general scope of the project is to widen and improve Bellam Boulevard within the limits indicated to four lanes (two in each direction) with parking. In addition, a two-way left turn lane would be provided in the center of Bellam Boulevard for most of this length. Curb, gutter, and sidewalk will be installed, with driveway access depressions provided at intervals along both sides of Bellam

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Boulevard. The intersection at Bellam Boulevard and Anderson Drive will be signalized, and the intersection approaches on Anderson Drive will be improved. Through the State Route 17 interchange area, Bellam Boulevard will be widened to provide two eastbound lanes and a westbound lane. In addition there will be a left-turn lane provided in each direction between the freeway ramp intersections. The two ramp intersections will be signalized, and the critical southbound State Route 17 off-ramp approach will be widened. The Francisco Boulevard intersection will also be signalized and will be interconnected with the two State Route 17 ramp intersection signals. Completion of this project will considerably improve the movement of traffic along Bellam Boulevard because of the widened street sections and because of the positive assignment of right-of-way at the signalized intersections.

KERNER BOULEVARD EXTENSION

The extension of Kerner Boulevard southerly to the San Quentin interchange vicinity will relieve some of the traffic pressure on the Bellam Boulevard interchange area and on Francisco Boulevard East. With this latter purpose in mind, developments in the area between Kerner Boulevard and East Francisco Boulevard should have their access oriented to Kerner Boulevard.

FRANCISCO BOULEVARD

Consideration should be given to the installation of a continuous median turn lane on the full length of Francisco Boulevard East and removal of all parking.

TRANSIT

Existing transit service is provided to central San Rafael, San Anselmo and Fairfax and to downtown San Francisco via buses on a Canal Street-

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1 Kerner Boulevard-Bellam Boulevard route. It is possible that these routes
2 could be expanded to include streets in the Spinnaker Point and Industrial
3 areas, should the demand develop.

4
5 The ferry service from the Larkspur terminal to San Francisco began
6 functioning in December 1976. (T-5) A number of ancillary bus systems
7 serving the ferry terminal are to be installed as part of the system. One
8 such bus line will operate on the aforementioned Canal-Kerner-Bellam route,
9 and will offer commuters another option for San Francisco service. Again,
10 the expansion of this route into other streets of the development area
11 would enhance its effectiveness.

12
13 Another possible transit development is for some form of rapid transit
14 system along the USR 101 corridor. At the present time, however, there are
15 no plans nor even feasibility studies contemplated for this system, and
16 the Golden Gate Transit District is merely retaining the concept as a
17 future option, should the need arise. (T-6)

18
19 A new concept currently being researched by the Golden Gate Transit District
20 is the "van pool," similar to the car pool but utilizing a higher capacity
21 van. This mode has been used previously by firms with large numbers of
22 employees, where enough reside in one area to make it feasible. It is
23 thought it might have some application here, where there may be a sufficient
24 number of outbound commuters with a common destination - for example,
25 downtown San Francisco - or for inbound commuters to the industrial area.

26 PEDESTRIAN WAYS

27
28 The Spinnaker Point preliminary plan includes a comprehensive system of
29 pedestrian (and presumably bicycle) routes through all the residential
30 areas and around the site periphery. The separation of pedestrian and
31 vehicle movements will enhance both the efficiency and safety of traffic
32 flow.

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Acoustical Conditions

Existing Conditions: To determine existing noise background levels in the project area, sound levels were recorded at two significant locations within the East San Rafael Redevelopment area. The noise measurements supplemented previous recordings taken in the Marina and Spinnaker Point housing areas. The first recording was made in the Pickleweed Park area at a location 100 feet north of Canal Street and 25 feet east of Sorrento Way. The second recording was made in the Seastrand North project area at a location 50 feet south of San Pedro Way and 25 feet east of Sea Way. These two locations represent the existing perimeter noise environment for the two proposed project sites and correspond to the setback distance of existing and possibly future residential buildings on the project site. Traffic sources on these two roadways are major sources of noise intrusion into the project area.

The measurements of existing noise were made with a sound level meter having the output connected to a graphic level recorder. The "A" weighting network of the sound level meter was used to facilitate comparison of the measured levels with noise standards of the San Rafael General Plan (J-1).

The continuous recordings produced on strip chart paper for each location were analyzed and the amount and percent of the time the noise level exceeded each of a series of "A" weighted levels were calculated. The data obtained were used to determine the cumulative distribution of noise over time. The data were adjusted as required using daily traffic distribution information of the Highway Research Board (J-2) to obtain the noise levels under peak traffic conditions.

A series of statistical levels has been developed to express noise levels exceeded for a given percentage of the time. Commonly used descriptors are the L_{10} , L_{50} and L_{90} levels which indicate the sound levels that were exceeded 10 percent, 50 percent and 90 percent of the time, respectively. The L_{10} represents the "intrusive" level, the L_{50} indicates typical or median levels and the L_{90} is used to indicate general background levels.

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The sound level distributions for the survey location along Canal Street and contiguous with the Pickleweed Park site indicates the "intrusive" or L_{10} level is 56 dBA, the "average" or L_{50} level is 47 dBA and the "background" or L_{90} level is 44 dBA. For the recording location along San Pedro Road and the perimeter of the Seastrand project site, the measured sound level distributions indicate the L_{10} level is 65.5 dBA, the L_{50} level is 58 dBA and the L_{90} level is 50 dBA. These statistical values of the sound levels are summarized below:

Roadway	Measured Existing Peak Traffic Hour Noise Levels (dBA)		
	L_{10}	L_{50}	L_{90}
Canal Street/Pickleweed Park	56	47	44
San Pedro Road/Seastrand	65.5	58	50

Noise level contours for U.S. Highway 101 and State Highway 17 were provided by the California Department of Transportation (J-3). These contours reveal that along Highway 17 the existing 70 dBA L_{10} noise contour extends to a distance of 210 feet from the roadway centerline. For Highway 101 south of the Highway 17 interchange, the 75 dBA L_{10} noise contour extends to a distance of 210 feet from Highway 101 centerline. Along Highway 101 north of the Highway 17 interchange and in the vicinity of the Yacht Harbor, the L_{10} noise level produced by Highway 101 traffic at a 200 foot distance from the roadway centerline is 75 dBA. Noise intrusion from the two freeways presently impacts mostly industrial, retail and limited open space areas.

In order to assess the severity of measured noise exposures in the project area, reference is made herein to the standards of the City of San Rafael General Plan (J-1). These standards establish an exterior noise limit of 60 dB day-night sound level (L_{dn}) for residential buildings and a limit of 65 dB L_{dn} for commercial and retail facilities. The standards also make reference to the 45 dB L_{dn} level which has been identified by the U.S. Environmental Protection Agency as the interior criterion level for residential buildings.

Acoustics
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The day-night sound level, L_{dn} , is a rating scale which divides the 24 hour day into two periods, daytime and nighttime, with a 10 dB penalty or weighting factor applied to the nighttime levels from 10:00 p.m. to 7:00 a.m. The L_{dn} , in decibels, represents the average "A" weighted noise level during a 24 hour day, adjusted to an equivalent level to account for the lower tolerance of people to noise during the nighttime period relative to the daytime period. The L_{dn} is calculated by decibel addition of the weighted average or energy equivalent levels for the daytime and nighttime periods with factors also applied representing the time duration of each of these daily subperiods.

An approximate assessment of the L_{dn} level can be made by utilizing the relations between the L_{10} and L_{dn} levels observed in typical urban traffic settings. For typical noise environments originating from freeway traffic sources, the L_{dn} level is approximately equal to the peak traffic period L_{10} level. For noise originating from traffic on roadways other than freeways, an approximate L_{dn} level can be determined by subtracting 3 dB from the peak traffic period L_{10} level.

An L_{dn} of 53 dB was calculated from the noise level data measured at the building setback distance from Canal Street at Pickleweed Park perimeter. An L_{dn} of 62.5 dB was obtained for the survey location at the Seastrand site and along San Pedro Road. The existing noise exposure representative of the Pickleweed Park area is, therefore, in compliance with the City of San Rafael limits applicable to exterior noise levels for residential uses. The noise exposure as measured at the building setback distance in the Seastrand project area is 2.5dB in excess of the 60dB limit. These exposure levels may be reduced, if the specific arrangement of the buildings and related outdoor spaces is such that the buildings provide a shielding effect on traffic noise. Also, roadside noise barriers may be used where noise excesses are not large.

Existing noise exposures at the proposed Spinnaker Point housing project and Marina area are given in the Environmental Impact Reports (J-4, J-5). These documents present measured noise level data for locations at the building setback distance from Bellam Boulevard and from Canal Street near the west boundary of the Spinnaker Point project site. For the survey locations along

Bellam Boulevard and Canal Street, exterior L_{dn} levels of 54.5 dB and 51 dB, respectively, were determined. These existing noise exposure levels, representative of the Spinnaker Point project area and applicable to both residential and commercial land uses, are in compliance with the City of San Rafael limits.

In order to assess the interior noise exposures in existing and future residential structures in the area of the project, a conservative 12 dB of noise reduction for open window conditions was applied against the measured exterior levels. Under closed window conditions, an exterior-to-interior reduction of 24 dB generally applies for typical residential building construction. This criteria is utilized by the U.S. Environmental Protection Agency (EPA) standards (J-6).

Using a conservative 12 dB of attenuation for buildings with open windows, the measured exterior level of 53 dB would be reduced to an interior level of 41 dB for residential buildings along Canal Street in the Pickleweed Park area. Therefore, the interior L_{dn} level under existing noise conditions would fall within the acceptable limit of 45 dB. In the Seastrand area, the L_{dn} level for residential buildings with open windows would be reduced from 62.5 dB to 50.5 dB, thus exceeding the acceptable limit by 5.5 dB under existing noise conditions. To reduce the interior levels in these buildings for compliance with the 45 dB limit, the use of closed windows is required. When a closed window condition is employed for noise control, air-conditioning or other appropriate mechanical ventilation must be provided.

For existing residential buildings along Bellam Boulevard and Canal Street near the Spinnaker Point project site, the exterior L_{dn} noise levels of 54.5 dB and 51 dB are reduced to 42.5 dB and 39 dB, respectively, in interior spaces with open windows. These interior levels under existing noise conditions, therefore, fall within the acceptable limit of 45 dB.

An assessment of L_{dn} levels for the area impacted by noise from Highway 17 traffic indicates that an L_{dn} contour of 70 dB extends along a line 210 feet from and parallel to the roadway centerline. Land use in this area is

1 largely industrial but also includes a retail and open space section. There-
2 fore, at a reference setback distance of 210 feet, the noise levels are in
3 compliance with the 70 dB limit for industrial zones but are 5 dB in excess
4 of the 65 dB limit established for commercial and open space zones. Along
5 Highway 101, both north and south of the Highway 17 interchange, an L_{dn} contour
6 of 75 dB extends along a line approximately 200 feet from the roadway center-
7 line. Therefore, at a setback distance of 200 feet from the highway center-
8 line, the noise levels are in excess of the 65 dB standard for open space
9 and commercial zones and the 70 dB standard for industrial zones.

10 An additional existing source of noise within the project area involves the
11 police outdoor pistol range located southwest of the Spinnaker Point project
12 area. The range is approximately 1,200 feet south of existing residential
13 buildings on Bellam Boulevard and 1,000 feet southwest of planned residential
14 buildings on Bellam Boulevard at the Spinnaker Point site. Also to be
15 located within 700 feet of the pistol range are a baseball diamond and tennis
16 courts.

17 Based on published noise level data for several types of explosive noise
18 sources, it is estimated that the pistol shots generate peak noise levels
19 up to 160 dB at a distance of 2 meters or approximately 6.5 feet. The
20 sound levels are reduced at the rate of 6 dB per doubling of the distance
21 from the source. Therefore, a reduction of 45 dB would occur as a result
22 of sound propagation over the 1,200 foot distance to the existing houses on
23 Bellam Boulevard. A 44 dB reduction would occur at the nearest planned housing
24 locations in the Spinnaker Point project. With these reductions applied,
25 estimated peak noise levels of 115 dB and 116 dB would be produced at the
26 existing houses and at the future Spinnaker Point houses, respectively.
27 However, the existing topographic conditions surrounding the firing range,
28 several dikes and landscaping fronting the site, will reduce the noise
29 levels substantially.

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Adverse Impacts:

PROJECT TRAFFIC NOISE

1 Implementation of the East San Rafael Development Plan will create additional
2 noise in the area as a result of increased traffic.

3 Table J-1, following, summarizes the predicted project increases in traffic
4 volumes as given by the traffic engineer (J-7) and the associated noise
5 level increases. For new street segments, the table indicates the projected
6 generated traffic volume and associated noise levels. Based on the traffic
7 generation rates for the various roadways in the area, the project traffic
8 noise impact levels can be predicted using methods of the U.S. Department of
9 Transportation (J-8). Please note that the traffic engineer's report includes
10 data for two existing and three new segments of Kerner Boulevard south of
11 Bellam Boulevard.

12 Table J-1 shows the predicted noise level increases generated along nearby
13 streets range from 1-7 dBA. Highest increases along existing street segments
14 occur in the vicinity of Bellam Boulevard east of Kerner Boulevard, Kerner
15 Boulevard south of Bellam Boulevard, Anderson Drive south of Bellam Boule-
16 vard and the south end of Francisco Boulevard. These increases, ranging from
17 6-7 dBA over existing ambient levels, are classified as having "minor impact"
18 as defined in the EIR guidelines (J-9).

19 The project generated impacts on other street segments range from 1 dBA to
20 4.5 dBA and are classified as having "little or no impact" as defined in the
21 EIR guidelines.

22 The assessment of predicted impacts from increased noise over existing levels
23 is shown by the following commonly accepted ratings, Ref. J-2:

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TABLE J-1

PROJECTED GENERATED TRAFFIC AND NOISE LEVEL INCREASES

	Existing Streets		New Streets	
	Traffic Increase %	Noise Increase (dBA)	Project Generated Traffic (ADT) *	Project Generated Noise (dBA L10)**
9	Canal, east of Kerner	21	1	--
10	Bellam, east of Kerner	292	6	--
11	Bellam, Kerner to Francisco	185	4.5	--
12	Bellam, Francisco to SR 17	59	2	--
13	San Pedro, vicinity of Sea Way	3	--	--
14	Kerner, south of Bellam	370	7	--
15	Kerner, south of Bellam	420	7	--
16	Anderson, south of Bellam	348	6.5	--
17	Francisco, south end	306	6	--
18				
19	Kerner, south of Bellam	--	3,100	56
20	Kerner, south of Bellam	--	2,700	55
21	Kerner, south of Bellam	--	4,900	59
22	Anderson, south of Bellam	--	8,800	60
23	Anderson, south of Bellam	--	1,000	51

* Average Daily Traffic

** Applies during peak traffic period at a 100 foot setback distance from roadway centerline.

Predicted Impact from Increase Over Existing Noise Levels

	Increase in Level	Assessment		Expected Response
		No Impact	Some Impact	
3	Less than 6 dBA			Little comment or individual reaction
5	6 to 15 dBA			Some individual comment and reaction, no group action is likely
7	More than 15 dBA			Strong individual comment and group action

The noise levels generated along new street segments range from 51 dBA to 60 dBA L10 noise levels at a 100 foot setback distance from the roadway centerline. These generated levels represent relatively moderate noise exposures which are considered to fall within the limits of the City Noise Element standards.

The increase in the noise level from traffic along Canal Street will be 1.0 dB, thus increasing the existing 53 dB exterior level in the vicinity of Sorrento Way to 54 dB. For Canal Street at the west boundary of the Spinnaker Point project site, the existing 51 dB exterior level will be increased to 52 dB. The corresponding interior levels under open window conditions at these two locations will be in the range of 40-42 dB. Therefore, the noise levels along Canal Street representing the Seastrand South project site and the north side of the Spinnaker Point project site will both remain in compliance with the 60 dB exterior noise limit and the 45 dB interior limit of the City and EPA standards.

Along Bellam Boulevard on the south side of the Spinnaker Point project site, the predicted noise level increase of 6.0 dB over existing ambient levels will result in an exterior L_{dn} level of 60.5 dB. The interior L_{dn} level after project completion will be 48.5 dB based on open window conditions, but would be reduced to 36.5 dB with closed windows. After project completion, the exterior and interior noise levels along Bellam Boulevard at this location will exceed the limits of the City standards. The interior excesses are determined for buildings with open windows. Please note that the exterior exposures are partially dependent on the specific orientation of buildings

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and the location of outdoor spaces. Also, landscaping designs with high berms and thick growths of trees and shrubbery can provide additional noise shielding.

CONSTRUCTION NOISE

During the construction of the project, high noise levels will temporarily be created. The site preparation and construction phases will generate sound levels ranging from approximately 70 to 100 dBA at 50 foot distances from heavy equipment and vehicles. Dozers, scrapers and concrete mixer trucks, for example, are rated by the EPA at 87 dBA, 88 dBA and 85 dBA average levels at 50 foot distances, respectively. These vehicles and equipment generally are diesel powered and produce a characteristic noise which is primarily concentrated at low frequencies. The noise fluctuates as a result of equipment movement on the site and variation in the engine power. Pile drivers generate impact noise with average peak levels at approximately 100 dBA.

These types of equipment units and vehicles act as point sources of sound which will diminish with distance at the rate of 6 dBA for each doubling of the distance from a noise source. For example, the 70 to 100 dBA noise range at 500 feet will reduce as follows:

Noise Range	Distance
70 to 100 dBA	50 ft.
64 to 94	100
58 to 88	200
52 to 82	400
46 to 76	800

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Sound level increases of 25 to 50 dBA could occur near the project boundary during the construction phase. As shown by the impact table in the preceding section, these sound level increases, typical of construction activity, represent a "great increase" for temporary periods.

Since construction is carried out in several reasonably discrete steps, each has its own mix of equipment and consequently its own noise characteristics. Generally, the initial phases which require the use of heavy equipment such as pile drivers, bulldozers, scrapers, trenchers, trucks, etc. will be the noisiest. The ensuing building construction and equipment installation phases will be quieter and on completion of the project, the area's sound levels will reduce essentially to the noise levels produced by roadway traffic.

NOISE IMPACT ON FAUNA

Various forms of bird-life are the principal type of fauna found in the development area. Construction phase activities and subsequent man-made noises from motor vehicles and other sources following occupancy of the development will have a long-term displacement effect on bird-life presently occupying the area.

Beneficial Impacts: As shown herein, long-term noise level increases from the project will be created by increased roadway traffic. Also, temporary noise level increases will originate from the construction phase activities of the project. All predicted noise level changes will result in increases having minor impacts within the development area. Except in special circumstances, for example where noise is used for masking purposes, noise level increases always represent an adverse impact. Therefore, no beneficial effects will be introduced by the project in respect to the noise environment of the area.

Mitigation Measures: The predicted noise excesses in reference to the City of San Rafael standards will occur at residential buildings on Bellam Boulevard along the south side of the Spinnaker Point project site and along San Pedro Road at the Seastrand project site.

Acoustics
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- J-8 U.S. Department of Transportation, Fundamentals and Abatement of Highway Traffic Noise, Report PB-222703, June, 1973.
- J-9 "Central San Rafael Redevelopment Plan, Briefing Package for EIR Consultants," February 3, 1975.

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Along Bellam Boulevard, the exterior noise excess after project completion will be a marginal 0.5 db and the interior excess for buildings with open windows will be 3.5 db. For future noise impacted residential buildings in the project area, the required control of exterior and interior noise exposures may be achieved by the use of effective noise barriers. Alternatively, in some cases the exterior noise levels could be controlled by effective orientation and location of the buildings and outdoor open spaces. Interior noise excesses can be controlled by the use of closed windows.

For future locations of residential buildings along San Pedro Road at the Seastrand North project area, noise exposures are in excess of the City standards under both existing and projected traffic noise conditions. After project completion, the predicted exterior noise levels will be 4.5 db in excess and interior levels for buildings with open windows will be 7.5 db in excess of City standards. These excesses could be resolved by the use of control measures similar to those described above for buildings along Bellam Boulevard.

For control of construction noises from the project, noise mitigation can be applied by using quieter than normal of "new technology" equipment; operating fewer pieces of equipment at a time; scheduling noisy operations for the daytime hours to avoid the more sensitive evening and nighttime hours; utilizing temporary berms or noise barriers; and by arranging equipment operations within the site to reduce sound transmission to the boundary or to noise sensitive locations.

Unavoidable Adverse Environmental Impacts: The adverse impacts of the project as described herein, are considered to be unavoidable because of increased vehicle traffic to the new residential areas.

Beneficial Impacts of the Redevelopment as Proposed: The proposed East San Rafael development projects will increase noise levels in the area resulting in a "minor adverse" impact, therefore, no beneficial impact will be realized.

Acoustics
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Demographic Conditions

Existing Conditions: The major portion of the East San Rafael Plan Area coincides with the boundary for U.S. Census Tract 1122. The only part of the Plan area which lies in another Census Tract is the Seastrand property, across the San Rafael Canal, which lies in Census Tract 1101. Industrial (including a sewage treatment plant and police firing range) and commercial uses, a post office and a fire station, are the only uses in the largely vacant area. There are two residences in the hills southwest of S.R. 17.

SPINNAKER POINT

The proposed Spinnaker Point project is located within the boundaries of Census Tract 1122, which had a population in 1970 of 3,387. The households are small, 2.23 persons per household compared to the Citywide average of 2.77. The household size in CT 1122 has shown a marked decrease since 1960, when it averaged 2.94 persons.

While the level of education achieved is comparable to the Citywide average, both the mean and median incomes of the residents are significantly lower. The area shows a high degree of participation in the labor market: of those above the ages of sixteen, 90.6 percent of the men and 64.7 percent of the women work. This well exceeds the Citywide average for men of 83 percent and women of 42.7 percent. The employment of women is concentrated in lower-paying, clerical positions (over half are so employed).

Nearly another quarter are employed as service workers and salespersons. Less than one-sixth work as trained professionals, or make use of technical skills. In spite of the relatively high level of participation in the job market, mean and median incomes are both only 73 percent of the comparable Citywide figure.

It is interesting to observe that while there is the above-noted disparity in aggregate income, San Rafael has on the whole a slightly larger percent of residents whose primary source of income is either public assistance, welfare, or social security, than has CT 1122. Thus the tract is the residence of moderate income people who, by and large, pay their own way and contribute to the City's tax base.

Demographic
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Among the workers in the area, most use automobiles as their primary means of transportation to and from work (89 percent versus 80 percent throughout the City). The majority (51 percent) work within the County, and approximately 29 percent commute to San Francisco. The comparable City averages for place of work are 54 percent and 31 percent, respectively. Automobile ownership patterns also differ. Within the census tract, 58 percent of the households own one car, 34 percent two cars, three percent three or more cars, five percent none; whereas the respective City averages are 44 percent, 40 percent, seven percent, and nine percent, respectively.

Census Tract 1122 residents are more transient than those of the entire City. Only 15 percent were reported to be living in the same unit in 1965 (the City average was 40 percent). Much of this characteristic can be accounted for in the fact that the area provides 40 percent of the multi-family housing (two or more units) in San Rafael and a large portion of the multi-family housing for the entire County.

Of 300 children grades K to 5 at Bahia Vista School, 214 come from the rental units west of Kerner Boulevard. These children are on their own after school until their working parents come home. They spend their after-school hours in the open spaces by the lagoon, as there are no parks in the area other than the two acre Pickleweek Park. Now that Seastrand South has been acquired as open space the area available to these children will increase to about 20 acres compensating for the loss of the lagoon area.

SEASTRAND

The proposed Seastrand project of single family homes lies within Census Tract (CT) 1102. In 1970, the population of the Tract was 4,054. The March 20, 1976 Special Census showed the population to be 4,749, which indicated an increase in the six years of 17 percent. The annual compound rate of population growth in the tract was close to that for the City as a whole, at 2.8 percent.

Household size in the CT was larger than the 1976 average for the City as a whole: 3.25 persons as compared with the City figure of 2.47.

Demographic
VI-K-2

Children account in 1976 for 34 percent of the CT population (down from the 1970 figure of 39 percent). The comparable figures for the City as a whole were 30 and 24 percent. Persons of 65 years or older account for five percent of the CT population, as compared with nine percent for the City.

Educational and employment characteristics vary a great deal between the CT and the City population. Median years of schooling for the CT is 14.7 in contrast with 12.9 for the City average. Only 28.6 percent of the women in the CT are employed; this represents two-thirds of the percentage for the City. Thus women accounted for one-fourth of the labor force, as compared with the City figure of one-third.

Among the workers in the area, most use autos as their primary means of transportation to work (89 percent vs. a City average of 80 percent). In the tract, less than one percent use public transportation compared with a five percent City average. Considerably more Tract residents are employed in San Francisco than is the average for San Rafael.

Impacts: A small population will settle in the presently uninhabited East San Rafael Plan Area. This population will tend to be a high income group and while they will contribute much to the local social and economic base, it is probable that the majority of the new residents will not find employment in the City of San Rafael but will commute elsewhere in the Bay Area.

Incompatibility between the existing lower income households of San Rafael just north of Bellam Boulevard and west of Spinnaker Point and the new high income enclave, Spinnaker Point, can only be speculated upon.

Mitigation: Measures to improve the "mix" such as including some high density low or moderate cost housing in the proposed housing areas would make these new developments more compatible with the existing population immediately west of the proposed housing.

Demographic
VI-K-3

Economic Conditions

Existing Conditions: This section presents information on current economic conditions in East San Rafael. The conditions are described under these headings: Industrial, wholesale trade, retail trade, and housing. The tables of descriptive data for the first three of these sectors are grouped together and appear following the presentation concerning retail trade in San Rafael.

INDUSTRY

Available data indicate that employment in manufacturing industries in the U.S. and in the San Francisco SMSA has tended in recent years to level out and even to decrease slightly. (Tables Ec-1, Ec-2). On the other hand, while manufacturing employment in Marin County decreased in the years 1970, 1971, it has tended to increase in the years through 1974. (Unfortunately at this writing in May 1976, manufacturing employment in Marin after December 31, 1974 is not available because of a number of changes after that date in SIC codes for types of industries and data for 1975 are still being sorted out.

The level of employment in manufacture of nondurable goods in Marin is stable but shows only a modest growth trend, while the data for durable goods manufacture show significant recent growth, particularly in manufacture and assembly of electric (and electronic) machinery. Time trends of employment in the major manufacturing industrial categories for Marin are shown in Tables Ec-3, Ec-4 and Ec-5. In the nondurable class, SIC 27 -- printing and publishing, is the principal category. The industrial categories in Marin, their respective employment levels and distributions of firms by size are shown in Table Ec-7 for the year 1974, and summaries by size of firm are shown in Table Ec-5 (1972).

The numbers of manufacturing employees in San Rafael as compared with the Marin County total are available for the years of occurrence of the Census of Manufactures. For the more recent years, 1963, 1967 and 1972, the San Rafael proportion has been about half of the County total. Until the proposed development of the Hamilton Field industrial area, this proportion might

Economic Conditions
VI-L-1

1 have been expected to continue fairly unchanged in future years. Assuming
2 an industrial area is to be opened at the former Air Base, the San Rafael
3 proportion of Marin's manufacturing jobs over the years may be expected to
4 drop to somewhat less than 50 percent. More details about San Rafael's
5 manufacturing activities are given in a subsequent section of this report.

6 From the viewpoint of projecting the future use or absorption of land in East
7 San Rafael, the interest is not solely in manufacturing employment, but
8 also in the categories of employment including: wholesaling, storage,
9 and transportation, communications and utilities (the latter three being
10 called TCU). Further, some governmental activities are relevant to the
11 present subject, e.g., the trucking and distribution functions of the Post
12 Office in East San Rafael which are essentially of an industrial nature.*

13 Activity in transportation, communications and utilities relates more directly
14 to population growth and to the levels of activity in the economy at large
15 than to manufacturing only. Of the three categories in "TCU," growth in
16 transportation (e.g., trucking) activity relates most directly to the level
17 of manufacturing activity.

18 Following evaluation of economic and industrial trends in the SMSA, Marin
19 County and San Rafael, (for use in the present report) projections of employ-
20 ment were made through the year 1990 for the employment categories of
21 relevance to industrial land absorption. Fitting of time-trend lines by
22 the technique of least squares was employed. The trend levels were established
23 from data for the months of July only (Tables Ec-4, Ec-5) and then (after
24 determination of slope) the intercept was adjusted to base data for the entire
25 year (annual average employment) of 1970. Other factors - such as potential
26 growth in the industries suitable to Marin, and vice versa, were considered.

27 * Under the new SIC categories, more of the actual industrial activities
28 of government are to be detailed according to their function, rather
29 than described in the common catch-all category of "government" - this
30 change will add to clarity in interpretation of employment data.

Economic Conditions
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Here are the projections of employment in Marin County:*

	1970	1980	1990
Manufacturing	3,200	4,020	4,880
TCU	2,100	2,550	3,280
Wholesale Trade	1,400	2,190	3,010
TOTALS	6,700	8,760	11,170

MANUFACTURING ACTIVITIES

As of 1973, it is estimated that slightly under half of Marin's manufacturing
employment of 3,641 was located at establishments in San Rafael (Table Ec-9).
According to the Census of Manufactures to 1972 employment in San Rafael's
manufacturing establishments had dropped from about 2,000 to 1,700, a decline
of 15 percent over the five years. The numbers of production workers dropped
also by about 300, from roughly 1,400 to 1,100. More startling is the drop
in annual production man-hours, from 2.9 million to 1.9 million over the
five-year period, a downward change of 34 percent. With all these changes,
the value added by manufacture increased slightly in terms of current
dollars, from \$33.6 million to \$36.7 million. With a correction for pur-
chasing power of the dollar, the value-added figure declined to \$29.3 mil-
lion. However, there was a significant increase in value added per production
man-hour, reflecting either greater productivity or change to a more valuable
line of products, or both. Some part of the increase in productivity could
be ascribable to greater mechanization, as may be reflected in the figures
on capital expenditure for plant. The figures on value added per production
man-hour, on a constant (1967) dollar basis, have increased in each year
for which the data are available, as follows:

Year	Value Added/ Man-Hour, 1967\$
1963	\$10.98
1967	11.59
1972	15.42

* The projections for manufacturing employment shown here, though independently
derived, differ by less than two percent from those of the Keyser-Marston
report, page XII-4. Most of the variation, in fact, devolves from a
difference of 70 jobs (out of 3,270) in the figures for the base year 1970
as used in the K-M and the present analysis.

Economic Conditions
VI-L-3

WHOLESALE TRADE

Wholesale trade has represented a thriving and healthy aspect of the economy of Marin and of San Rafael, and can be considered a growth industry over the long term (Table Ec-4). Despite the recent drop in employment (after 1972), however, the long-run prospects are for growth in this sector.

From 1963 to 1972, the number of merchant wholesalers in San Rafael increased from 56 to 97, which gain (41) accounts for the growth in total numbers of wholesaling establishments over the nine year period, from 80 to 121 (Table C-10).

Over the nine years, the payrolls of these establishments grew (current dollars) by 92 percent. From 1967 to 1972, while the employment increased by 18 percent, the total payrolls grew by 48 percent. Table Ec-4 shows that employment in wholesale trade in Marin County grew from 600 in 1964 to 1,500 in 1974, at an annual growth rate of 9.6 percent.

While there was no appreciable change in San Rafael's wholesale sales volumes from 1963 to 1967, there was a great change from 1967 to 1972 -- in the amount of 79 percent.

Employment in wholesale trade in San Rafael appeared to represent about two-thirds of the total in that category for the entire County as of 1973. This fraction was calculated by projecting San Rafael's employment in wholesale trade from 1972 to 1973 by the annual growth rate from 1967 to 1972, and comparing the result with Marin's figure of 1,510 jobs in wholesale trade as of mid-March, 1973.

It is logical that wholesaling should be a long-term growth activity in San Rafael, which is at a strategic location for distribution throughout the County -- being at the junction of the extensions from the two major bridges serving the County and on its major spinal highway. Furthermore, the wholesaling area (in East San Rafael) is contiguous to that junction -- of S.R. 17 and USR 101, the two major routes serving the County and connecting it with other major centers of the San Francisco Bay Area.

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VI-L-4

RETAIL TRADE

Fewer than twenty establishments in East San Rafael are engaged in retail sales. A number of the establishments provide a combination of retail sales and service. These establishments are located mainly at the westerly end of the Redevelopment Area, in the Bellam Boulevard area, but a number of establishments are located along Francisco Boulevard and along the Andersen Street axis. The specifics of the retail activities of these firms is not known; however, it is possible to specify conditions of retailing in San Rafael as a whole.

In constant dollar terms, retail sales at retail stores (there are about 18 percent of the total which take place elsewhere) increased at an average rate of 5.45 percent in the ten year period from 1963 to 1973 (Table Ec-12). However, retail sales in 1974 and 1975 have been at a slightly lower level than that set in 1973. As the economy moves out of the apparently ending recession, it may be expected that growth will again take place, though perhaps not at the rate established in the 1963-73 period.

In Table Ec-11, it may be seen that a distinction is made between convenience goods and shoppers' goods. The former tend to be sold near to places of residence. Thus, while San Rafael had about 21 percent of the County's population in 1974, it accounted for only 23 to 30 percent of the County's sales in convenience goods. On the other hand, buyers tend to go to major purveyors for shoppers' goods, and thus San Rafael in that year accounted for about 50 to 70 percent of the County's totals for same, and 71 percent of the sales at general merchandise stores in Marin County occurred in San Rafael.

Table Ec-13 shows the change in numbers of permits for retail sales in San Rafael from 1970 to 1975, as well as the sales in current dollars, by type of store. The numbers of apparel and packaged liquor stores declined, as did the number of gasoline stations. There were increases in numbers of permits for all other listed types of outlets. The largest increase in dollar volume over the five-year period appears to have been registered by the service stations, though the tenfold increase appears suspect (as perhaps

Economic Impacts
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might result from a statistical reclassification rather than from actual fact). The next largest rate of growth, by 140 percent, occurred in sales of building materials and farm implements. The smallest rate of growth of sales appears to be attributable to the drug stores, with an increase of only 15 percent (current dollar terms) in the five years. In constant dollar terms, the drug store sales in San Rafael thus actually decreased by over 17 percent in the five year period.

TABLE EC-1
MANUFACTURING EMPLOYMENT
IN SAN RAFAEL, MARIN COUNTY, AND THE SAN FRANCISCO-OAKLAND SMSA
1958-1972

Year	San Rafael	Marin Co.	SF-O SMSA	SR as % of Marin Co.	Marin Co. as % of SMSA
1958	725	1,730	190,300	41.9	0.91
1963	920	1,985	196,200	46.3	1.01
1967	2,000	3,600	197,900	55.6	1.82
1972	1,700	3,200	181,400	53.1	1.76

Source: U.S. Census of Manufactures for the years of record.

TABLE EC-2
MANUFACTURING EMPLOYMENT
IN SAN FRANCISCO-OAKLAND SMSA AND THE U.S.
1958-1972

Year	SMSA (in 1,000s)	U.S.	SMSA as % of U.S. Manufacturing Employment
1958	190.3	16,025	1.19
1963	196.2	18,958	1.16
1964	193.2	17,269	1.12
1965	194.4	18,010	1.08
1966	200.1	19,025	1.05
1967	197.9	19,323	1.02
1968	196.4	19,528	1.01
1969	200.9	20,036	1.00
1970	196.7	19,217	1.02
1971	185.7	18,363	1.01
1972	181.4	18,319	0.95

Source: U.S. Census of Manufactures.

TABLE EC-4
ESTIMATED EMPLOYMENT IN SELECTED INDUSTRIAL CATEGORIES IN MARIN COUNTY
MONTHS OF JULY: 1958-1974, WITH PROJECTIONS FOR 1976 AND 1977

Year	Manufacturing		Transp., Comm., Utilities, Sale (TCU)	Wholesale Trade	Retail Trade	All Non-agric. Wage & salary Workers
	Durable	Non-durable				
1958	900	900	1,800	600	4,900	22,200
1959	1,300	900	2,200	600	5,300	24,200
1960	1,400	900	2,300	600	5,600	25,200
1961	1,400	900	2,300	500	6,100	26,500
1962	1,800	900	2,700	500	6,300	27,400
1963	1,600	900	2,500	600	6,800	30,100
1964	1,700	1,000	2,700	600	7,800	33,100
1965	2,000	1,000	3,000	800	8,200	35,100
1966	2,500	1,000	3,500	900	8,400	37,400
1967	2,300	1,200	3,500	1,100	8,400	40,900
1968	2,600	1,000	3,600	1,100	9,200	44,400
1969	2,900	1,100	4,000	1,300	9,700	46,600
1970	2,300	1,000	3,300	1,400	10,000	46,200
1971	1,800	900	2,700	1,500	10,300	46,900
1972	2,300	1,200	3,500	1,800	10,800	50,100
1973	2,400	1,200	3,600	1,600	12,200	54,400
1974	2,600	1,200	3,800	1,500	12,400	54,200
1975 (June)			3,500	1,500	12,400	56,500
1976 (June)			3,700	1,600	12,800	57,900
1977 (June)			3,800	1,700	13,100	59,900

Source: Division of Employment Data and Research, State Employment Development Department.

Note: Excludes workers in government employment.

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Notes: a/ Does not include self-employed, unpaid family or private household workers.
b/ Includes self-employed, unpaid family and wage and salary workers.
c/ Includes employees of construction contractors and operative builders.
d/ Excludes employees of operative builders.
e/ Includes all civilian employees of Federal, State, and local government regardless of the activity in which the employee is engaged.

Source: Employment Data Research Division, State Employment Development Department.

Industry	Manufacturing		Transportation, communication, and utilities	Trade Wholesale Retail	Finance, insurance, and real estate	Services	Government	Agriculture
	1970	1971						
Manufacturing	44.8	46.0	49.2	1.1	0.5	0.1	0.1	33.6
Transportation, communication, and utilities	8.5	8.7	9.1	3.1	3.6	3.7	3.3	3.3
Trade	3.2	3.1	3.1	3.1	3.6	3.7	3.3	3.3
Finance, insurance, and real estate	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Services	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Government	12.8	13.5	13.6	13.7	13.8	13.9	14.0	14.0
Agriculture	12.8	13.5	13.6	13.7	13.8	13.9	14.0	14.0

TABLE EC-3
MARIN COUNTY ANNUAL AVERAGE, 1970 - 1974
ESTIMATED NONAGRICULTURAL WAGE AND SALARY AND AGRICULTURAL EMPLOYMENT
(Amounts in thousands)

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TABLE Ec-5

ESTIMATED EMPLOYMENT IN MANUFACTURING OF DURABLE GOODS, MARIN COUNTY: 1958-1974
AS OF JULY OF EACH YEAR, 1958 - 1974, WITH PROJECTIONS FOR 1976 AND 1977

Year	Lumber & Furniture	Primary & Fabricated Metals	Machinery		Transport Equip.	Other	Total
			Non-elect.	Electric			
1958	200	200	-	-	200	300	900
1959	300	300	100	-	300	300	1,300
1960	200	300	100	200	300	300	1,400
1961	200	200	100	300	300	300	1,400
1962	200	200	100	600	300	400	1,800
1963	200	200	100	600	100	400	1,600
1964	200	200	100	700	200	300	1,700
1965	200	200	100	900	100	500	2,000
1966	200	300	200	1,100	100	600	2,500
1967	200	300	400	1,000	100	300	2,300
1968	100	300	300	1,000	200	700	2,600
1969	100	300	300	1,000	100	1,100	2,900
1970	100	300	200	800	100	800	2,300
1971	100	200	200	500	100	700	1,800
1972	200	100	200	600	200	1,000	2,300
1973	200	100	200	800	200	900	2,400
1974	-	100	300	1,200	200	800	2,600
1975 June				1,100			
1976 June				1,100			
1977 June				1,200			

Source: Division of Employment Data and Research. State Employment Development Department.

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TABLE Ec-6
ESTIMATED EMPLOYMENT IN MANUFACTURING OF NON-DURABLE GOODS, MARIN COUNTY: 1958-1974
as of July in each year

Year	Other Foods	Textiles & Apparel	Paper & Printing	Chemicals & Petroleum	Other	Total
1958	400	-	200	-	300	900
1959	400	-	200	-	300	900
1960	400	-	300	-	200	900
1961	400	-	300	-	200	900
1962	300	-	300	-	300	900
1963	300	-	300	-	300	900
1964	300	-	400	-	300	1,000
1965	400	-	400	-	200	1,000
1966	200	-	400	-	400	1,000
1967	200	-	400	-	600	1,200
1968	200	-	400	-	400	1,000
1969	200	-	500	100	300	1,100
1970	200	-	400	100	300	1,000
1971	200	-	500	-	200	900
1972	300	100	600	100	200	1,200
1973	200	100	600	100	200	1,200
1974	300	100	600	-	200	1,200

Source: Division of Employment Data and Research. State Employment Development Department.
Note: a. "Other" than food canning and preserving.

Economic Conditions
VI-L-11

TABLE EC-7
EMPLOYMENT BY TYPE OF INDUSTRY IN MANUFACTURING, TCU, AND WHOLESALING
MARIN COUNTY, 1973

Industry	Number of Establishments	Total Employees	Number of Establishments by Size Group			
			1-19 Employees	20-99 Employees	100-249 Employees	250+ Employees
MANUFACTURING	3,461	7,448	101	101	101	101
Food products	160	177	2	2	2	2
Textiles	320	177	15	15	15	15
Chemical and allied products	320	177	15	15	15	15
Metals	320	177	15	15	15	15
Electronics	320	177	15	15	15	15
Plastics	320	177	15	15	15	15
Rubber	320	177	15	15	15	15
Glass	320	177	15	15	15	15
Paper	320	177	15	15	15	15
Other	320	177	15	15	15	15
TRANSPORTATION	320	177	15	15	15	15
COMMUNICATIONS	320	177	15	15	15	15
ELECTRIC, GAS AND HEATING	320	177	15	15	15	15
OTHER	320	177	15	15	15	15
WHOLESALE	320	177	15	15	15	15
RETAIL	320	177	15	15	15	15
SERVICE	320	177	15	15	15	15
OTHER	320	177	15	15	15	15
TOTAL	3,461	7,448	101	101	101	101

Note: Excludes government employees, self-employed persons, etc. -see "General Explanation." Size class 1 to 3 includes reporting units having payroll during first quarter but no employees during mid-March pay period. "D" denotes figures withheld to avoid disclosure of operations of individuals reporting units).

Source: County Business Patterns, 1973. USDC, SESA, Bureau of the Census, August, 1974.

Economic Conditions
VI-L-12

TABLE EC-8
Marin County (1972)
Distribution of Manufacturing Establishments by Type and by Number of Employees

SIC	Total No. of Establishments	No. Establishments by Size Group			
		1-19 Employees	20-99 Employees	100-249 Employees	250+ Employees
20	8	7	1		
23	9	9			
24	7	7			
25	11	8	2	1	
26	1	1			
27	49	4	44	1	
29	2	2			
30	15	12	2	1	
31	1	1			
32	19	13	6		
34	12	11	1		
35	16	12	4		
36	13	9	2		
37	10	10			
38	8	4	3	1	
39	12	11	1		
CAO	3	1	1	1	
TOTAL	196	162	27	6	1

Economic Conditions
VI-L-13

TABLE Ec-9

Selected Data on Manufacturing Establishments in San Rafael:
Years 1963, 1967 and 1972

	Money in Current Dollars		
	1963	1967	1972
Establishments			
Total Number	60	71	97
With 20 Employees or more (number)	11	14	19
All Employees			
Number	920	2,000	1,700
Payroll, \$ millions	5.464	12.0	14.6
		5.96	12.0
Production Workers			
Number	659	1,400	1,100
Man-Hours (millions)	1.27	2.9	1.9
Wages, \$ millions	3.64	9.3	7.6
		3.97	9.3
Value added by mfr., \$ millions	12.8	33.6	36.7
Cost of Materials, \$ millions	-	14.1	18.4
Value of Shipments, \$ millions	-	45.1	54.8
Capital Expenditures, new, \$ millions	-	0.8	2.0
Value Added per Production Man-Hour	-	11.59	19.32
		10.98	11.59

Source: Respective issues of the Census of Manufactures, VSDC. Bureau of the Census.

Note: In 1958, 725 manufacturing employees contributed to a "value added" figure of \$7.25 million.

Economic Conditions
VI-L-14

TABLE Ec-10

Characteristics of Wholesale Trade
San Rafael: 1963, 1967, 1972

	Year	
	1963	1972
Total		
Establishments, number	80	104
Sales, \$1,000, current prices	74,914	77,453
Sales, 1967 \$ (1,000)	79,270	77,453
Payroll, entire year, current \$ (1,000)	4,731	6,126
Payroll, entire year 1967 \$ (1,000) ^a	5,160	6,126
Paid employees for week including March 12, number	-	832
Proprietors	-	53
Merchant Wholesalers		
Establishments, number	56	81
Sales, current \$ (1,000)	(D)	51,576
Sales, 1967 \$ (1,000)	(D)	51,576
Other Operating Types		
Establishments, number	24	23
Sales, current \$ (1,000)	(D)	25,877
Sales, 1967 \$ (1,000) ^b	(D)	25,877

(D) Data withheld to avoid disclosure.

Source: Wholesale Trade: Area Statistics. 1963, 1967, 1972, U.S. Department of Commerce, Bureau of the Census.

Notes: a) Payroll data are adjusted to constant (1967) dollars with the Consumer Price Index, U.S. Dept. Labor, Bureau of Labor Statistics.

b) Wholesale prices are adjusted to constant (1967) dollars with the Wholesale Price Index, U.S. Dept. Labor, Bureau of Labor Statistics.

Economic Conditions
VI-L-15

TABLE EC-11

Total Sales at Retail Stores: San Rafael 1963 - 1975
In Millions of Dollars

Year	In Current Dollars	In 1967 Dollars
1963	78.3	85.4
1964	88.6	95.4
1965	96.2	101.8
1966	94.4	97.1
1967	98.4	98.4
1968	112.6	108.1
1969	120.3	109.6
1970	118.9	102.2
1971	135.7	111.9
1972	160.4	128.0
1973	192.9	144.9
1974	205.3	139.0
1975	224.7	139.4

Sources: Retail sales data from State Board of Equalization. Consumer Price Index figures from U.S. Department of Labor.

Note: Total retail sales at all outlets in San Rafael exceed the totals at retail stores only. In 1975, e.g., the total sales at all outlets exceeded those at retail stores only by some 18 percent.

Economic Conditions
VI-L-16

TABLE EC-12

Taxable Sales and Numbers of Permits: San Rafael, 1970 and 1975
(Transactions in \$1,000s)

Retail Stores	1970		1975	
	# Permits	Taxable Sales	# Permits	Taxable Sales
Apparel	68	10,661	64	15,785
General Merchandise	18	23,687	24	49,519
Drug	12	6,297	14	7,225
Food	35	7,977	36	12,293
Package Liquor	9	2,188	8	3,209
Eat & Drink Establishments	85	8,087	112	16,516
Home Furniture & Appliance	52	8,593	93	13,387
Building Material and Farm Supplies	33	8,851	37	21,360
Auto Dealers & Supplies	44	25,637	52	45,666
Service Stations	46	1,411	40	14,747
Other Retail	135	15,568	186	25,022
Retail Store Totals	537	118,946	666	224,729
All Other Outlets	691	25,100	971	40,201
Totals All Outlets	1,228	144,046	1,637	264,930

Sources: 1970: "Trade Outlets and Taxable Retail Sales in California," Tenth Annual Report, State Board of Equalization.

1975: Advance proof of 1975 Yearly Taxable Sales Report from Statistical Research and Consulting Division, State Board of Equalization.

Economic Conditions
VI-L-17

SPINNAKER POINT

Residents of East San Rafael (more specifically Census Tract 1122) are predominantly employed in the same types and to the same degree of occupations as are residents of the City of San Rafael. Within the general classifications of industry-of-occupation, there are two notable exceptions, wholesale trade and educational services. In 1970, wholesaling engaged 8.7 percent of the C.T. residents and education 4.6 percent; the respective Citywide percentages were 4.7 percent and 8.5 percent, the proportions appeared to be interchanged. There were also slight differences in the classifications of workers: about 81 percent (in the C.T.) were either salaried or privately employed, only 4.3 percent were actually self-employed compared to city averages of 74.7 percent and 8.9 percent.

Average income of C.T. residents and City residents appears to vary widely. Median 1970 incomes for families and unrelated individuals was 82.5 percent that of City residents; while family income was only 73 percent of that found for the City. This difference occurs despite the higher degree of participation in the labor market by the C.T. residents. Of adults over the age of sixteen, 90.6 percent of the men and 64.7 percent of the women were employed; Citywide averages were 83 percent and 42.7 percent respectively. This difference cannot be attributed to education nor to ethnic characteristics, because there were no significant differences in the characteristics found between Census Tract and City residents. (The 1970 Census indicates that less than four percent of the C.T. 1122 population was enumerated as being of an ethnic minority). Although the group involves a relatively small number of persons, it might be noted that the percentage of families with female heads of household in the C.T. is 15% compared to 10% Citywide.

East San Rafael is predominantly a rental area (nearly 90 percent), with most units in complexes of between five and 49 dwelling units. The majority of these were constructed during the 1960s (77 percent). As a consequence, two-thirds of the residents reported moving into their homes in the two years prior to the Census of 1970; none were reported to be living in their homes prior to 1960. The comparable City averages were 42 percent and 18 percent respectively.

Economic Conditions
VI-L-18

No significant differences between Tract and the City was noted in that percent of income, which was spent for rent.

It is estimated that based on rental values, the average value of a dwelling unit in C.T. 1122 was, in 1970, about \$22,000. However, it should be also observed that of specified owner-occupied units, 27, or 73 percent, had a value in 1970 of over \$50,000. San Rafael on the other hand had a comparable value of \$38,000.

Of the 1,589 renter and owner-occupied dwelling units, 1,150 are located in multi-family buildings of five to 49 units. Due to its fairly recent construction, the housing does not appear to be substandard. Only one percent lacks some or all plumbing and/or kitchen facilities. The percentage of owner-occupied housing is very low, only about nine percent.

Assessed valuation of Seastrand South is as shown below.^b

	1972	1975	Acres
Residential site	\$34,023	\$27,761	6.04
Open space	\$60,072	\$46,916	16.40
Lagoon area (marina)	\$27,217	\$23,152	3.00
Totals	\$121,312	\$97,829	25.44

The figures marked an inexplicable decrease from 1972 to 1975, of the order of 19.4 percent. During this time, the overall county average increase in AV was 39.4 percent. The land is presently unused, being of the nature of a natural marsh. The current tax rate for the area in which the project site is located is \$10.31 per \$100 of assessed value.

SEASTRAND

Residents of C.T. 1102 are mainly employed in the same industries and to nearly the same degree as are residents of San Rafael; the only exception being finance, insurance, and real estate (F.I.R.E.). The F.I.R.E. group of industries employs 18 percent of the C.T. population, as contrasted with 11 percent in the City. The F.I.R.E. group is limited to single-family homes on less than ten acres and with no business on the property. These figures reflect the valuation prior to purchase 19.5 acres of this area as open space by the City and the deletion of Seastrand South Housing from the Plan.

Economic Conditions
VI-L-19

1 The City's eleven percent. (1970) However, within occupational categories
2 there are several significant differences between the C.T. and total San Rafael
3 population: in the C.T. there were in 1970 twice the percentage amount of
4 workers employed in managerial or administrative capacities; and there were
5 half as many workers employed as craftsmen in the C.T. The proportion of
6 professional workers in the C.T. was 24 percent contrasted as to 18 percent
7 for the City (1970).

8
9 The income of the C.T. residents is the greatest found within the city; in
10 1970, the median household income (\$18,838) was found to be 74 percent larger
11 than the citywide figure of \$10,832.

12
13 The area is predominantly composed of single-family homes, (over 99 percent),
14 whose median market value was in 1970 \$48,200 (the second highest area
15 figure in the City).

16
17 The homes in the tract were built primarily during the 1960s (nearly three-
18 fourths): the area saw little development or construction prior to 1950.
19 A very high degree of home ownership was found in this Tract: fully 92
20 percent of the dwelling units were owner occupied in 1970.

21
22 The numbers of persons per household decreased from 1970 to 1976 in the C.T.
23 and in the City overall. The figures were:

	1970	1976	Change, Percent
Population			
C.T.	4,054	4,749	+17
San Rafael	38,977	45,611	+17
Number of Dwelling Units			
C.T.	1,171	1,498	+28
San Rafael	14,096	18,469	+31
Persons Per Dwelling			
C.T.	3.5	3.25	-7
San Rafael	2.77	2.47	-11

Economic Conditions
VI-L-20

Assessed valuation of Seastrand North is as shown below.

	1972	1975	Acres
Residential Site	81,281	83,843	23.17
Open Space	14,281	14,281	8.00
	95,562	98,124	31.17

8 The figures show only a 2.7 percent increase in AV over the three year period.
9 During this time, the overall county average increase in AV was 39.4 percent.
10 The land is presently unused, being of the nature of a natural wetland in
11 the level area, and on its eastern side, a steeply rising hillside from
12 which magnificent views may be seen of the Spinnaker site and all East San
13 Rafael. While under consideration as a location for a public park, this
14 site was known as Cypress Point (for some of the fine trees on the hillside
15 below Bellevue Avenue, the eastern boundary of the site).

16
17 Mitigation: Build homes in the price range of \$40,000 to \$60,000 on the
18 Spinnaker site so as to provide residences for some of the additional labor
19 force which will work in East San Rafael. Seastrand South should remain
20 in open space. This will help to ensure viability of the ESR project,
21 rather than to attract more commuter residents to the City which would
22 mostly be the case with the proposal to build homes there of from \$65,000
23 to \$90,000 (Spinnaker) and \$100,000 to \$125,000 (Seastrand South).

Economic Conditions
VI-L-21

Public Services Conditions

Existing Conditions: Public service conditions have been adequately described in the Spinnaker Point and Marina EIRs.

Impacts: The impact on public services of the proposed Seastrand development will be minimal as these developments are very small. Fire and public services are capable of including these subareas of East San Rafael in their respective service areas. Drainage will be handled by several lagoon systems as proposed in the Spinnaker Point Plan, and by filling to an elevation of nine feet and construction of an adequate levee by property owners in the southern portion of East San Rafael. A major impact felt by the implementation of these projects will be the loss of some useable open space. Both the Seastrand North and Spinnaker Point developments will replace presently undeveloped areas used for informal recreation.

In the industrial area the proximity of Fire Station #4 is beneficial. Problems of a police-related nature are not anticipated and the need for solid and sanitary waste services will be minimal due to the type of industry and its low intensity of land use. Waste water from the industrial area (1990 projection) developed will be approximately 180,000 gallons per day. Sewage from Spinnaker Point will raise the present dry weather flow from 78 percent of capacity, to 80 percent; the Marina will raise it further to 82 percent; the ESR industrial development will raise it still further to 85.6 percent. Flood control also is needed in this presently lowlying and unevenly filled area. The greatest impacts on public services will be from the Spinnaker Point Housing and Marina developments because of the intensity of uses and the size of the developments.

Mitigation: A mitigation measure which would solve flooding problems would be to raise the elevation of the fill in all areas to a uniform height necessary to permit surface waters to flow into the drainage channels. This could easily be accomplished throughout the area before any new construction takes place. However, under the present plan it is proposed to be accomplished on a parcel-by-parcel basis.

Public Services
VI-M-1

Public Utilities Conditions

Water Services Conditions: At the present-time southeastern Marin County is under the restrictions of a moratorium imposed by the Marin Municipal Water District on new water service connections. Water service has been approved for the proposed Spinnaker Point development due to the unique situation in which utilities connections were all installed in 1964-65. (See Spinnaker Point and Marina EIRs). An excess number of approved water rights may be reallocated to the rest of ESR area.

Seastrand North has not been approved for water service connections.

In the industrial area, McKeon Industrial Park, already largely constructed will be permitted water service within 125 feet of the existing main along Anderson Drive for structures by Oct. 31, 1979. A water main also is in use along Highway 17 but no new connections south of the drainage easement at the south end of McKeon Industrial Park will be permitted until the moratorium is lifted.

Water shortages in the southeastern Marin County have resulted in rationing in the past several months. The November, 1976 County-wide ballot contained a measure which proposed means of obtaining more water for the County (SoulaJule Dam project) which was approved by the voters. However, as a result of the severe drought in 1976-77, the price of water in Marin may continue to be high and the use of the existing water supply may continue to be subject to limitations even after the SoulaJule Project is implemented. There is probably a need for a water storage tank in the hills near this area.

Gas and Electricity: Gas and electricity will be supplied by P.G. & E. under the rules and regulations of the California Public Utilities Commission.

Public Utilities
VI-N-1

Energy Consumption

The California Environmental Quality Act, as amended in January 1975, requires a discussion of measures to reduce the inefficient and unnecessary consumption of energy by proposed projects. Mitigation measures derived from the discussion have as their goal, decreased usage of petroleum products or natural gas. The following paragraphs are a discussion of energy processes associated with a proposed development plan for East San Rafael.

National and Regional Perspective Relative to Energy Usage by the Intended Project (Refs. En-1 to En-7): On a national basis in 1972, for a raw energy total of about 70×10^{15} BTU, 19.5 percent was used by residential and commercial operations; 24 percent by transportation; 31 percent by industry, and 24.5 percent by electrical utilities. The nationwide total households required an annual input of about 15×10^{15} BTU of which more than one-half was discarded as waste energy. In particular, space heating consumes 65 percent of the residential energy budget and provides about 80 percent of the wasted energy. At the same time water heating consumed about 13 percent of the residential energy budget; lighting about 10 percent, cooling five percent and cooking five percent. In 1973 and 1974, the national totals were 74.7×10^{15} and 73.1×10^{15} BTU, respectively. User category percentages have not changed appreciably. The 1972 figures include compilations from the 1970 census data.

In California, 96 percent of the residences are gas heated; the remainder use electrical heating. Negligible amounts of oil, coal or wood are used for space heating. In 1972 in the Bay Area, an average of 2.7×10^{12} BTU per day were consumed by the following users:

Domestic	17.1%
Commercial	6.5
Refineries	18.3
Utilities	15.4
Industrial	10.6
Transportation	30.5
Miscellaneous	1.6

In California, despite an addition of more than a million new cars, trucks

Energy
VI-0-1

and buses on the state's highways, gasoline consumption is down about three percent from the pre-embargo levels of 1973. Currently ten billion gallons of gasoline are used annually in the state. In June 1973, '74, '75, the state used 877, 855, 888 millions of gallons of gasoline, respectively.

Each day in 1972, 2.8 million cars and light duty trucks consumed six million gallons of gasoline while driving about 26 million miles (En-5). This consumption amounts to about 0.67×10^{12} BTU per day or about one-fourth of the daily energy budget.

The following tabulations present 1974 compilations of natural gas and electricity consumption per customer relevant to the domestic segments of the East San Rafael Plan namely Spinnaker Point, Seastrand North and a 600 berth marina facility. G = gas in Therms. E = electricity in kWh.

Table En-1

User Identification	Energy Use 1974 Annual Average	Customers Served
Northern California (Incorporated areas)	G 1,088 E 5,304	1,766,355 1,760,909
Northern California (Unincorporated areas)	G 1,199 E 8,318	545,619 740,453
Marin County	G 1,137 E 5,752	
San Rafael City (Typical average residence)	G 1,377 E 6,143	

Approximately twice as much residential energy is provided by natural gas compared to electricity. In perspective then, considerable energy savings may be realized by focusing attention on energy wasteful (or possible alternatives) space and water heating processes; lighting, cooking and cooling processes as well as the potentially avoidable daily vehicle trips driven by residents. In addition, an important energy source that is currently wasted appears in the form of garbage which is produced at the rate of about five pounds

Energy
VI-0-2

per person per day. (See p. VI-09 for mitigation proposed.)

Impact: In the following sections, a daily energy consumption unit, barrels per day of fuel oil equivalent, $\frac{B}{DOE}$, will be used to describe energy consumption and savings. Details on this energy unit are explained in the following summary.

Energy Units*

One billion British Thermal Units (BTU) have the following energy equivalents:

- 160 Barrels of fuel oil
- 171 Barrels of diesel fuel
- 195 Barrels of gasoline
- *293,000 Kilowatt hours of electricity
- 950,000 Cubic feet of natural gas
- 10,000 Therms of natural gas

In the Bay Area in 1972 domestic users consumed $74,000 \frac{B}{DOE}$ while cars and light duty trucks used $107,000 \frac{B}{DOE}$. In the East San Rafael Redevelopment Project, the dwelling units are assumed to have a percent average-use profile as given in reference En-4; the local energy consumption rates from typical homes of San Rafael Table En-1 are used in the calculations.

Daily electrical energy and natural gas requirements for the proposed ESR project residential and Marina uses are listed in Table En-2 as a function of each use category. It is assumed for the residential areas, mercury vapor lamps (250 watt) are spaced on standards 175 feet apart and operate for eleven hours each 24 hour period.

One kilowatt hour has a defined energy equivalence of 3412 BTU. However, in the generation and delivery of this kilowatt from power station to the user, approximately two-thirds of the primary source of energy, oil or gas, is wasted, hence one kilowatt hours of electricity delivered to a residence has a required fuel energy input or equivalence of $10,000 \frac{B}{DOE}$ or 0.0016 their energy requirements.

Energy
VI-0-3

Table En-2

Major Residential Energy Use Categories	National Average Home-Use Profile % of Total Energy Consumed	Spinnaker Point 311 Units	Seastrand No. & So. 100+ Units	Marina (600 Berths +Comm. Fac.)
Electricity:				
Lighting, other appliances and miscellaneous	10.1 %	2.5	0.8	2.1 (including lots & berths)
Cooling	5.2	1.33	0.43	0.05
Cooking	4.6	1.14	0.37	--
Clothes Drying	1.9	0.48	0.15	--
Natural Gas:				
Space Heating	65	16.2	5.3	0.5
Water Heating	13.2	3.3	1.1	0.15
Total Energy Used	100.0%	24.9	8.1	2.8
Street Illumination Energy Requirements (including ballast)	--	0.29	0.1	Included in Lighting

Vehicles, driven by the residents of the houses specified in the Spinnaker Point Project, the Seastrand North and users of the Marina facility use energy resources in the form of vehicular gasoline. Using as estimated daily VMT (vehicle miles travelled) provided by the Traffic Engineer in conjunction with a national average of 13.7 miles driven per gallon of gasoline, and an estimated mean fuel-consuming trip length of eleven miles, the following equivalent of energy use rates are generated.

Project	Total Trips	Daily VMT	B/DOE
Spinnaker Point (Alt C)	4,710	51,820	73.8
Seastrand North	760	8,330	11.9
Marina (600 berths facility)	2,000	24,500	11.9
Marina Vessel Fuel Usage Estimate	--	--	114

Energy
VI-0-4

No bicycle lanes are provided on site, nor are specific bus waiting stations or car pool collection centers provided on the site plan. The lack of planned alternate transportation measures within the project results in unnecessary consumption of fuel by private vehicles.

During the construction phase, a large quantity of energy will be consumed in the form of diesel fuel for earth excavation, moving, filling and compacting processes. For a five mile round trip, the loading, hauling, and final placement of imported material consumes about 600 gallons of diesel fuel for 2,000 bank yards of fill material. Local cutting and filling operations use about one-half this amount of fuel for the same volume.

Such figures apply to proposed transportation recommendations, such as the extension of Kerner Boulevard. On the other hand, the total estimated energy required for the inboard marina facility dredging, excavation and filling operations is 2,100 barrels of oil equivalent. The outboard marina facility alternatives would use about 30 percent less total earth moving and dredging energy (1,400 barrels of oil equivalent).

For the commercial and industrial operations which include outside shopping trips, trips commuted by the workers and service personnel as well as fuel for light and heavy truck transport - operations for raw material and finished products the estimated fuel usage, gasoline and diesel fuel is 550 B/DOE. Of this quantity 300 B/DOE are commuter-type trips.

Mitigation: The following tabulations list categories of energy usage, a mitigation action to reduce energy usage, the percentage savings in energy requirements for heating or cooling the building. The energy savings are based on best information averaged between industry sources, each item taken separately.

Where indicated in parentheses, the cost figures are as current as possible, reflecting unit cost per installation of devices, materials and performance of recommended practices. N/A is not applicable.

Table En-3

Category	Mitigation Action	Heating Savings %	Cooling Savings %
Space Heating			
	10°F setback on thermostat at night	19%	
	Lower mean thermostat level to 68° from 72°F	20	
	Insulating ducts (7 to 10¢/ft.)	10	
	Automatic clock thermostats (Chronotherms \$75) by Honeywell		
	Flue gas heat recovery units (\$125)	25	
	Replace gas burners with electronic pilot lights on space and water heaters (\$125)	12	
Attic Space Ventilation	Install thermostatically controlled electric blowers (\$100) wind-driven turbines (\$75)		15% 10
Air Conditioning	Installed central AC (initial cost \$800/ton) and room temperature level raised from 74 to 78°F. Ducts insulated (7 to 10¢/ft.)		22
Windows (Glazed area = 20% of floor area)			
	Replace single pane (cost for a standard 6000, \$35) by double pane, (thermal pane or T windows) (costs 4 to 5 times single pane costs)	10	7
	Replace single panes by Triple Pane Units	13	9
	Use of Reflective films on double panes (\$1/ft ²)	-	12
	Use window walls (\$6/ft ²) with films	15	10

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Energy
VI-0-5

Category	Mitigation Action	Heating Savings %	Cooling Savings %
1			
2			
3	Tinted Glass (30% more expensive than clear glass)		7%
4			
5	Drapes, shades, venetian blinds (\$25 to \$50/ unit)	6%	
6			
7	Awnings 32" to 34" overhang		11
8			
9	Shade trees, deciduous on southerly windows		14
10			
11	Change single units to storm doors with seals and solid core (\$50) or with steel jamb, foamed core with magnetic seal (\$75)	7	20
12			
13			
14			
15	Water Heating		
16	Insulate pipes (preformed 25¢/ft) Use double insulated tanks (\$75 to \$100)	4	
17			
18	Lower temperature setting to 120° F from 145° F	8	
19			
20	Insulation		
21	For an uninsulated residence use insulation to get resistance values shown:		
22	Ceiling R-19	20	10
23	Walls R-11	15	9
24	Floor R-11	10	3
25			
26	New buildings are required by code to meet the following specifications with (20% of floor area in glazing)		
27			
28	Ceiling R-19		
29	Walls R-11		
30	Floor R-11 (7 to 10¢/ft ²)		
31	Use 2 x 6 studs in the walls to accommodate R-19 insulation. Spaced on 24-inch centers. 30% less framing material is used and stud grade 3 will be structurally acceptable. (\$250/1000 board feet)		
32			
33			
34			
35			
36			
Category	Mitigation Action	Heating Savings %	Cooling Savings %
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1 area than individual dwellings in condominiums, semi-detached dwellings, town-
2 houses and apartments in apartment buildings. A one-story home of rectangular
3 shape has essentially the same heat loss as a two-story square home. Any
4 reduction in the ratio of exterior wall area to floor area reduces heat loss,
5 hence energy demand, by the unit. When compared to a square or rectangular
6 layout, L or H or T shaped layouts have the greater energy losses.

7 During the subsequent construction of the units, the use of concrete slabs
8 at grade can result in reduced additional earth moving operations and a
9 reduction in fuel consumed by construction equipment. In the Bay Area
10 climate, the slab floor can result in lower heat losses when compared to ven-
11 tilated concrete or block walled, crawl-spaces or basements. If carpets are
12 used on most of the floor area, heat loss through the base can also be re-
13 duced. Windows located relatively high above finish grade can enhance natural
14 interior illumination. As well, an eave overhang will also prevent some of
15 the summer sun's rays from entering the windows; during the winter, however,
16 the sun angle which is closer to the horizon does penetrate the windows to
17 provide a desirable heat gain.

18 An important energy source is currently wasted in the form of
19 garbage which is produced at the rate of about five pounds per person per
20 day. The alternatives produce the following estimated daily quantities and
21 B_{DOE} values (which could be used for example to provide electricity for street
22 lights, traffic signals and service water pumping):

23	Spinnaker Point	3,800 lb/day	1.14 B/DOE
24	Seastrand Project	.420 lb/day	0.12 B/DOE
25	Marina	620 lb/day	0.19 B/DOE

26 Reference En-9 estimates a return of 390 kWh per ton of refuse using a 34
27 percent power plant efficiency. Such a plant however would require at least
28 100 tons per day of refuse. A 50 ton per day, one million dollar pilot plant
29 in Riverside, California, designed and built by Pyrolysis Systems Inc. will
30 be completed in October, 1976. It will then be scaled up to 300 tons per day
31 if the pilot plant proves to be feasible. Recovery of recyclable materials,
32 glass, aluminum and steel also serves to reduce waste in refining raw

Energy
VI-0-9

materials, as well as reducing demands upon declining amounts of natural resources.

33 It was earlier estimated that traffic attributable to the project would consume
34 77.7 ⁸ DOE. Bicycle traffic could reduce vehicle miles travelled by
35 one to two percent. By car pooling on two-thirds of the daily trips with three
36 passengers per vehicle minimum, 45 percent of the fuel burned could be saved.
With a van-pooling operation for two-thirds of the daily trips with six to
eight passengers per van (although more miles are driven at reduced miles per
gallon) the gasoline fuel, hence energy savings, are about 50 percent.

37 Solar powered space and water heating units as well as swimming pool heaters,
38 En-12, are showing great promise in being able to provide energy for these
39 purposes in the Bay Area. About 70 percent of the energy required for domestic
40 heating could come from the sun coupled with a storage system (1000 to 3000
41 gallons of water or 20-25 tons of pebbles) for cloudy days. A 700 to 800
42 square foot absorber unit on the roof can be aesthetically blended into the
43 project architecture. The total cost of such a system at this time would
44 be close to \$4,500 which is about five times the cost of conventional home
45 heaters and a pool heater installation.

46 The remainder of the energy requirements, 30 percent would be provided by conven-
47 tional oil or gas fired heaters. The use of solar energy absorbers is very
48 desirable in the current and expected energy picture, since in spite of the
49 initial energy and material requirements to fabricate the collectors, they
50 have been shown to pay for themselves (En-12) without continuing to consume
51 non-renewable petroleum resources.

52 In early 1976, foreseeing a shortage of natural gas, the California Public
53 Utilities Commission stated that after April 1 there would be no further new
54 connections to use gas to heat swimming pools. A loud public protest and
55 inability to enforce their demand has led the PUC to back down, extend the
56 deadline and continue further hearings on the subject. What is important,
however, are the obviously inevitable natural gas shortages. Solar heaters
and black plaster material for swimming pools in this event become satis-
factory heating methods.

Energy
VI-0-10

1 Natural gas, which will be the first petroleum resource to be depleted, has
2 a current price 11d of about two dollars per barrel of oil equivalent, compared
3 to 11 to 13 dollars for a barrel of oil on the world market. When this price
4 11d is removed (although currently the Federal Government has indicated it
5 will continue to impose a 11d on the current price of natural gas for the
6 major producers) and the gas price spirals upward, supplies will continue to
7 dwindle and solar heating systems will become more desirable from a unit cost
8 basis, an energy conservation basis, and an air quality basis. Much
9 experimental investigation on solar absorber systems is on-going at the Hewlett
10 Packard Sunnyvale Plant; the Lawrence Radiation Laboratories; and at Lockheed.
11 There are also experiments with planned water heating systems currently in
12 the city of Santa Clara and on the San Jose State University campus. Many
13 specific helpful hints to conserve energy are listed in pamphlets readily
14 provided, to name a few, by the National Association of Home Builders, EN-11;
15 a P.G.E. brochure, "67 Ways to Save Energy"; or "Tips for Energy Savers"
16 from the Federal Energy Administration Office and the very complete
17 Standard 90-75 of Reference EN-18.

18
19 Few specific details are available for the extensive industrial land use
20 element of the East San Rafael Redevelopment Plan. In an overview then, for
21 industrial energy consumption considerable energy savings may be realized
22 by:

- 23 (i) reducing energy wasteful processes or incorporating alternate
- 24 schemes for more efficient space heating or cooling.
- 25 (ii) consideration of more efficient or alternate lighting practices.
- 26 (iii) reusing energy normally lost to the environment.
- 27 (iv) reducing unnecessary usage and dependency on vehicles driven by the
- 28 workers, suppliers and customers of the industrial type operations.

29
30 At this time only a general discussion is possible to delineate energy
31 wasteful or energy efficient, techniques and operations. The following
32 items when incorporated in part or in total, with specific development
33 plans, will reduce inefficient use of energy.

34
35 Very specific applications in energy conservation are described in detail
36 in the literature, e.g. Reference EN-8.

Energy
VI-0-11

1
2 (i) Insulation/Heat Loss Protection. For the concrete slab base, one-
3 inch by twelve-inch edge insulation will reduce heat losses from the
4 building. Any ducting traversing unconditioned spaces should be insulated
5 to reduce energy transfer to or from the treated air in the ducts.

6
7 (ii) Orientation/Building Design. On the southeast, south and southwest
8 elevations, a 32 to 34 inch eave overhang will reduce summer solar heat
9 gain by about 50 percent. In the winter months the eave overhang still
10 allows penetration by the sun's rays into the interior of the building,
11 thereby reducing the heating load.

12
13 (iii) Transportation Measures. A transportation exchange and car-pooling
14 information center should be established on site for the workers. By
15 providing bus stop/waiting facilities that are weather protected and con-
16 venient, the use of public transportation is both supported and encouraged.
17 Efficient commuter connections to the Larkspur Ferry Terminal should be
18 investigated and encouraged.

19
20 (iv) Conservation Devices. Maintaining the summer temperature at 72° F was
21 earlier considered wasteful of energy. For the average person, a summer
22 setting of 78° F is quite comfortable. For each degree the thermostat
23 is raised, there is a three to five percent saving on air conditioning
24 power requirements. Humidity levels should be controlled in the winter
25 months. If interior relative humidity is increased, for example, from 20
26 to 60 percent, equal wintertime comfort will be achieved with air tempera-
27 tures reduced by three degrees F. This temperature reduction in turn
28 results in about an eight percent saving in energy required for space heating.

29
30 On the roll-up loading doors, a flexible collar or bellows could be attached
31 to inbound or outbound vans to reduce losses of heated or cooled air through
32 the open doorway. Another possibility might be the use of air curtains at
33 the loading doors. Variable volume cooling systems could be effectively
34 used to maintain air temperatures for regions with different or changing
35 operations within the building.

Energy
VI-0-12

Another energy saving device is an automatic timer-equipped thermostat that cycles the interior building temperatures. As well, an outdoor thermostat can act as an early warning system for indoor heating and air conditioning units. If the outside temperature is rising, it tells the interior thermostats not to turn on the furnace because the warming outside air will soon bring the building up in temperature. When the outdoor temperature is falling, it keeps the burners on a little longer in order to avoid the inefficiency of continuous reheating of interior air. The use of energy reflecting glass, thermal windows, bronzed or smoked glazing, as well as reflective films applied to glass surfaces, can reduce unwanted solar heat gain with 50 to 75 percent less energy absorption compared to ordinary glazing material. In a study conducted by the U.S. Department of Commerce, for buildings with approximately 15 percent window area, ordinary shades or drapery material could make an immediate saving of eight cents of the heating dollar and about two cents for each cooling dollar.

(v) Lighting Practices. Fluorescent lighting should be used to provide the majority of artificial interior illumination. Such fixtures provide three times the illumination and last ten times as long as comparable wattage incandescent lights. At the latitude of the project, skylights can provide at least ten watts per square foot of opening; hence a ten foot by three foot skylight can replace a 300 watt luminaire. (Reference EN-8F).

Windows located high upon the side walls can also provide natural interior illumination.

(vi) Construction Practices. During the construction period, foundations can be planned to rest upon natural ground elevations which implies reduced earth moving operations and a commensurate fuel usage.

Numerous suggestions of good construction practice and insulation practices are continuously provided by the American Institute of Architects and various Federal and Private Agencies, many of which are presented in the best interests of conserving energy. (References EN-13 through EN-18 inclusive). Some examples are the use of additional sill sealers and caulking of all cracks in doors, windows or wall openings; using duct tape as well

Energy
VI-0-13

as flexible insulation to seal all duct joints; filling cores in tilt-up walls or cinder blocks with materials like vermiculite, perlite or expanding foams.

(vii) Waste Heat Recovery. Reference EN-8E lists several forms of waste heat recovery in industrial plants. Such forms include flue gas heat recovery units use of heat discharged from cooling or freezing systems; excess heat produced by heat treating or furnace brazing operations; heat rejected by paint baking ovens; heat given off in product processing and drying (as in paper or textile operations); heat expelled from environmental cooling equipment (an enclosed space or clear room within a plant where controlled temperature and humidity are required).

(viii) Recycling. Centralized waste material recovery centers should be provided on site. A system wherein paper, glass, metal and plastic are separated, allows use of combustible materials to generate heat and/or steam for reuse. Other materials, such as metals, plastics, or glass, may be efficiently recycled in the economy which in turn begins to decrease the depletion rate of natural resources. (Ref. EN-9).

(ix) Energy Rate Structures. Elaborate discussions related to alternate rates for electrical energy that are designed to reduce energy consumption have taken place between the California Public Utilities Commission and the major energy supplier, Pacific Gas and Electric Company. Among the suggested alternatives considered in case #9804 were inverted rates, discount rates, marginal cost pricing, special penalty rates for excessive electricity consumption, and time of day pricing. Peak pricing would result in charging industrial customers a higher price during daily periods of greatest electrical energy demand as opposed to lower prices for energy demands during partial peak or off-peak hours.

An on-going experiment, AMPAC, (Automatic Meter Reading and Control) will, for the individual user, control not only "how much" electricity is used but when, during the day. By connections to major energy using devices in home or business, AMPAC could automatically cycle the air conditioner, or water heaters, on and off at regular intervals which could result in a

Energy
VI-0-14

1 a substantial reduction in energy demand during peak load periods. Energy-
2 user comfort would not be significantly affected while the utility bill may be
3 expected to decrease. The system automatically applies a differential in
4 rates for use of electricity in off-peak and on-peak periods of the day.

5
6 An energy accounting system is essential for control and subsequent review
7 and evaluation of any energy conservation. The data for such an accounting
8 system will require measurements and observations of the flow processes
9 which carry energy throughout the plant. In a small business, the basic
10 measurements associated with utility bills for fuel and electricity may
11 be adequate. In more complex operations, with many energy input flow
12 streams, it is important to determine variations of energy use within
13 daily, weekly, monthly and seasonal production cycles. An overall energy
14 balance should be developed for major energy use processes. Identification
15 of the following categories is essential for conservation: energy input
16 as utilities and raw materials; energy lost in waste disposal; energy
17 credit for by-products; net energy charged to the product; energy waste due
18 to inefficient machinery and operations. Individual actions within these
19 categories might include:

- 20 - reducing service hot water temperatures.
- 21 - using unconditioned air for exhaust hoods.
- 22 - sizing electric motors for peak efficiency.
- 23 - de-energizing excess transformer capability.
- 24 - covering condensate tanks.
- 25 - turning off steam tracing lines during mild weather.
- 26 - using proper steam traps with insulated condensate lines.
- 27 - heating incoming fluids from hot process fluids.
- 28 - recovering heat from oven exhaust for space heating.
- 29 - preheating combustion air with waste energy in flue gases.
- 30 - minimizing oven ventilation.
- 31 - improving and monitoring combustion control systems.
- 32 - reducing temperature of process heating equipment when on standby.
- 33 - turning off conveyors, transfer system and fork lift trucks when not in use
- 34 - keeping loading doors or dock areas closed when not in use.
- 35 - consolidating deliveries of raw material or finished products.
- 36 - conversion from intermittent batch-type operations to continuous operations
- reducing scrap or waste by-product formation.

Energy
VI-0-15

1 Coupling the initial effort to identify the energy use/waste processes with
2 standards or criteria for efficient energy use and vigorously promoting
3 a continuing effort to maintain those standards, will result in savings of
4 20 to 30 percent of the fuel and electricity required by industry using equip-
5 ment and practices typical of today's operations.

6
7 In conclusion, by continuous monitoring of specific planning and development
8 phases of the residential, recreational, commercial and industrial portions
9 of the East San Rafael Redevelopment Project, the suggestions, techniques
10 and references will permit concerned individuals and corporations alike
11 to do their part for energy conservation today; and even more important,
12 continue to efficiently use energy in the near future.

Energy
VI-0-16

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VI-0-17

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- ORNL Oak Ridge National Laboratory
- NSF National Science Foundation
- EP Environmental Program
- NAHB National Association of Home Builders

Energy
VI-0-18

VII. IMPACT ANALYSIS

Irreversible Environmental Changes

Development of the proposed projects in the East San Rafael Redevelopment Area would cause several irreversible environmental changes. Some of these changes are perceived as being of no major consequence since the sites have already been altered by filling and construction of streets and utility lines. Other sites have a relatively undisturbed natural setting and would be radically and irreversibly changed by the proposed development.

The Spinnaker Point site, storm water retention ponds and the industrial area east and west of SR 17 are partially improved sites. Although little in the way of a natural habitat remains in these areas, both the lagoon in the Spinnaker site and the storm water retention ponds to the south offer some value as animal habitats. The Spinnaker site additionally provides an area of informal open space used for a variety of recreational pursuits. Development of this site would permanently preclude this use and reduce the amount of available open space. The development of the storm water retention ponds, and shoreline park though may increase the available animal habitat to this area by recreating a salt marsh on that site. With the development of the industrial area no significant environmental changes will take place.

Within Seastrand and Pickleweed Park are appreciable open areas and natural habitats. These sites contain the only remaining salt marshes in San Rafael Bay. These marshes support a tremendous variety of flora and fauna in an extremely fragile environment. (See Biological Conditions.) The hills above Seastrand are relatively undeveloped and support live oak tress, grasses and shrubs.

The original plans for development of these sites would have resulted in irreversible environmental changes and the elimination of existing wildlife habitats. The Seastrand North and South developments as originally proposed would have eliminated the only remaining natural salt marshes in San Rafael Bay and drastically altered the adjacent mudflats. These saltmarshes now will be preserved and improved, in both areas as of Final EIR writing.

Irreversible Changes
VII-A-1

Dredging and changes in the shoreline configuration would result in unavoidable adverse impacts which include destruction of a portion of the mudflat and its inhabitants and disturbance of the water by churning up settle pollutants and silt. Erosion of the shoreline would also occur as a result of wave action created by these operations and by boats.

The existing informal open space above the marsh of Seastrand North would additionally be developed as housing with no appreciable open space remaining.

The proposed residential developments are to be occupied by 200-400 housing units containing up to 1,250 persons. At most, this would increase the population of San Rafael by approximately 2.8 percent. This population increase would require a fractional increase in the service requirements of the City. County, school districts and other taxing agencies within the County.

Development of the housing would require the use of materials, including irreplaceable resources. Development of the materials and utilization of the site would require the use of energy, also an irreplaceable resource.

Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The majority of the project site presently is not employed in any productive use, other than serving as a minor habitat and informal open space recreational area. Some 200 acres in the area south of Bellam Boulevard are used in active light industrial production. The site previously has been altered by diking and filling and thus has been removed from its previously productive use as mudflat. From an ecological point of view, development of the site would preclude any opportunity to return it to its natural condition. At the present time marshes in the Seastrand and Pickleweed Park sites could readily be restored as productive bay marsh. This is now part of the Plan as of Final EIR writing and will compensate for the loss of the Spinnaker Point site as open space. Another marsh area could be created in the drainage pond area.*

Development of the site would enhance the socioeconomic environment by providing housing, employment, recreation and publicly owned and accessible marsh. There has been a general commitment in the revised Plan for about 55 acres of marsh to be preserved in this area. P-5 East San Rafael Redevelopment Plan, May 1977

Short Term/Long Term
VII-B-1

1 open space. However, the type of housing being proposed is not the type
2 needed to support the employment center proposed. In the long term more
3 moderate income housing will be needed.

4
5 Public services would be required, however it is anticipated that public
6 revenues generated by the development would exceed service costs.

7 Growth Inducing Impacts of the Proposed Development

8 The continuing development of a high-quality industrial and commercial
9 area in East San Rafael, adjoining accessible open space and natural park-
10 lands can have a strong effect on the economy of San Rafael and of Southern
11 Marin. San Rafael can gain in industrial employment even though the pros-
12 pects are meager for the SMSA as a whole. This can occur through growth
13 of the industries which find a good base in Marin, and through relocation
14 of industries from elsewhere in the SMSA.

15 The East San Rafael site is a desirable one for activities involving
16 transportation, communications, warehousing and storage, because it is at
17 the confluence of the two major routes serving the county and linking it
18 to the rest of the Bay Area.

19 About 4,000 jobs could be located within the site by 1990, if suitable
20 promotion and improvement of the physical site occurs in the intervening
21 years. These jobs could bring in payrolls of over \$40 million. The greater
22 number of these jobs would be basic, bringing in new income to the area.
23 These jobs could induce a greater demand for housing in the San Rafael
24 area and to the north. Because of the competition of San Rafael with other
25 areas in Marin for qualified occupants of industrial sites, this projection
26 of impact is a qualified one: it depends upon continuing strong action by
27 San Rafael interests to make the East San Rafael site a desirable one in
28 terms of grade, drainage and street access, for example. It will also
29 depend upon favorable consideration of the distribution in ESR of the excess
30 water connection rights of the Spinnaker site. It will depend on first-
31 rate engineering foundation designs for industrial and commercial structures,
32 so that full advantage may be taken of the site vis-a-vis the more distant,
33 northerly industrial sites.

Growth
VII-C-1

1 Growth of industrial and commercial employment may attract workers from
2 other counties: from Sonoma, Contra Costa, Alameda and San Francisco.
3 This would be a natural concomitant to shifting of some industrial acti-
4 vities from elsewhere in the SMSA. For the most part however, the site would
5 employ Marin residents.

6
7 Secondary employment would be generated in service industries, creating
8 greater strength in the San Rafael economy, as the ESR industrial area
9 matures. There could well be a problem of housing for the new employees
10 since the costs of residences in southern Marin have been climbing out of
11 sight of all but professional and managerial personnel. If this trend
12 continues, it will be found that the competitive strength of the ESR area
13 with the Novato/Hamilton industrial sites will be weakened. Economic
14 strength in the southern Marin area will thus depend on concerted efforts
15 to generate moderate-income housing: failure to so accommodate local employ-
16 ment will result in ever-increasing hordes of cars squeezing through the
17 7 to 9 A.M. bottleneck on the Waldo. At any rate, the point is that moderate
18 to middle-income housing will be in greater demand in the area as the ESR
19 development matures. The housing problem under discussion will not be
20 solved to any significant degree by the expensive housing proposed on the
21 Spinnaker and Seastrand sites.

22
23 For that reason, it may be said that there is an imbalance -- a clear lack
24 of correspondence -- between the proposal for industrial development in
25 East San Rafael and for construction of executive-level housing only on
26 the two open, nearby sites. There could be more long-term gain to the
27 City in providing housing on the Spinnaker and Seastrand North sites to
28 accommodate its future labor force, than in providing residences for more
29 commuters only. The interests of the developer and of the City may diverge
30 on this issue.

31
32 The direct growth-inducing impacts of those projects are discussed under the
33 housing section which follows.

Growth
VII-C-2

HOUSING

The Seastrand^a site is to become the location of approximately 34 dwelling units which would be occupied by families in upper income brackets. To the extent that the site attracts new residents to San Rafael, there will be an impact in terms of sales of goods and services to the newcomers. Those San Rafael residents who elect to move from their present homes to the Seastrand sites will not be part of a growth-inducing impact; rather, their purchases and transactions will be merely transferred from one part of the City to another. Their vacant homes may be purchased by present out-of-towners, but the impact of these sales will be scattered and not very significant.

Assuming that 23 of the 34 dwelling units are purchased by new residents of San Rafael, it may be estimated that these new residents will account for and stimulate consumption of about 2.08 million in local sales and services and an additional \$188,000 in indirect sales. This presumes an average income of the respective families of between \$40,000 and \$50,000. The effect on the San Rafael economy is greater than the actual annual incomes of the new residents, by reason of the known multiplier effects of an infusion of incremental income into the local economy.

The statements above assume a complete occupancy of the new housing site -- i.e., successful sales of the relatively high-cost homes in what will be a very attractive new marine setting. It is expected that the site and home designs will create an environment in Seastrand in which the relatively expensive new homes will meet the prevalent demand in Marin for such housing. At Seastrand, the prices are expected to range as high as \$200,000, while average home prices at the site will be \$160,000.

a. Seastrand South was eliminated as a housing development site after DEIR printing, thus reducing the total number of units in the Seastrand developments by slightly more than one-half.

Growth
VII-C-3

VIII. ALTERNATIVES TO PROPOSALS FOR EAST SAN RAFAEL REDEVELOPMENT

A. No Project

The existing plans for the East San Rafael Redevelopment include Seastrand; Spinnaker Point, also a housing development with a large municipally owned marina; an industrial area east and west of Highway 17; and lastly the north face of Point San Quentin Ridge.

If the East San Rafael Plan is not adopted and implemented, the present unimproved subareas would continue to be vacant-but-useable open space until a new proposal for each of them would come forth. In the Seastrand and Spinnaker properties the result would be felt as a loss to the owner who would be unable to use his land and still be required to pay taxes on it. In the business and industrial and open space review areas the advantages of land assemblage for flood improvement and open space planning would be lost. The present scattered development would proliferate until the area would be saturated with industrial uses creating a visual eyesore and a loss of considerable open space with potential for public use.

B. Postponement of the Action

Same as A.

C. Retain all Marshlands as Nature-Study and Open Space Areas

To accomplish this alternative, housing in Seastrand North could be constructed in the lower, less steep portion of the hillside. If necessary, more housing could be concentrated in the Spinnaker Point development to take the pressure off the Seastrand site.

Alternatives
VIII-1

1 D. Provision of Larger Areas and More Useable Open Spaces in the Spinnaker
2 Point Development Proposal

3
4 This could be accomplished by including some high density residential units
5 along the bayshore to free some of the land for open space use.

6
7 E. Develop the Proposed Industrial Area South of Hwy. 17 as Low Density Housing

8
9 While this alternative would be satisfactory in terms of suitability of
10 location for the housing it is clear that more low-density high cost
11 housing is not needed in this redevelopment project. Perhaps it could
12 be seen as necessary if both Seastrand projects were eliminated in favor
13 of parks and conservation of open space.

14
15 F. Ferry Terminal South of Marina

16
17 No alternative is proposed for the park along the bayfront. This open
18 space is both badly needed and the only suitable use for bayfront lands
19 as specified in the Bay Plan, the Marin Countywide Plan, and the San Rafael
20 City Plan. However, if marshlands in both Seastrand properties are
21 retained and a larger amount of open space is conserved in the Spinnaker
22 Point and Marina projects, then the location of a ferry terminal in the
23 dredge spoils area should be considered. It is possible that open space
24 and a ferry terminal would be compatible here. The ferry terminal would be
25 useful and valuable to residents in the housing developments as well as
26 to the merchants and industrialists in the rest of the East San Rafael
27 Plan Area. It would insure the marketability of new housing and stimulate
28 commercial activity.

29
30 Alternatives
31 VIII-2
32
33
34
35
36

1 G. Use of Marshes for Processing Effluent from the Sewage Treatment Plant

2
3 This alternative use of the "Modified Lowlands - Some Brackish Ponds" area (See
4 Fig. 9) has only been preliminarily investigated. The method of processing is
5 new and controversial but is being used by the Mountain View Sanitary District
6 in the Benicia/Vallejo area. Impacts could be determined only after a detailed
7 and exhaustive study, including most likely, a separate environmental impact
8 report. Use of the land for this purpose would no longer designate it open
9 space unless it could be shown that conservation of the marshes was being
10 accomplished.

31
32 Alternatives
33 VIII-3
34
35
36

Public Acquisition of the Site

The Redevelopment Agency does not intend to acquire ownership of the lands in East San Rafael which are intended for use by private enterprise. These lands will have uses including industrial, wholesaling and storage, retail, utilities and housing. In addition, there are tax-free uses intended in the Redevelopment Area which will call for land ownership or leasing by various governmental entities; but there is no call for acquisition of these properties by the Agency or by the City.

However, the plan for the Area does call for negotiated dedication or if necessary acquisition of extensive acreages of land for open space uses. The acreages of open space are listed by type in Table E-17 in the section on Fiscal Impact. Also given in that Table are the 1975 assessed valuation and a figure of "market value," which represents a number four times the AV. That "market value" is not, of course, a compelling guide to purchase price; and the acquisition of such lands is always a matter for direct negotiations.

It will be noted that the Seastrand South and North sites have "open space" listings in Table E-17 referred to above. This listing follows the ROMA plan for the Redevelopment Area. However, the private developers have indicated the intention to acquire the adjoining space in Seastrand North as private recreation area for the residents of the site, only. The City's acquisition of the Seastrand South for open space has resolved the dual use-listing open space housing for that site in the SEIR.

As of this writing, it appears that the Shoreline Park will be based upon the concept of acquiring a strip of shore land of a width of 100 feet, rather than that shown in the ROMA plan, and hence of an acreage less than that shown in Table E-17. It also appears at this time that the amount of acreage to be acquired as forest-preserve open space on San Quentin Ridge may be reduced. Hence the acreage figures of that open space as shown in Table E-17 may also be greater than the actual case will eventually prove out. Consequently, the available land for industrial/commercial purposes west of S.R. 17 would prove to be greater than is shown in Table E-17 in the section on Fiscal Impact.

Public Acquisition
VIII-4

It should be reiterated that the figures on assessed valuation in the tables of the Fiscal Impact section are only approximations. The fitting of fractions of parcels to the various land-use areas of the Redevelopment Plan called for visual approximations. Hence the figures are to be used as guides to valuation, not as authoritative figures of the level of accuracy required for site acquisition purposes.

Public Acquisition
VIII-5

GLOSSARY

ABAG, Association of Bay Area Governments: ABAG is the regional planning agency for the nine San Francisco Bay Area counties. While it has no powers and can only recommend actions, it is the clearing house for plans and applications seeking federal and state funds.

ADT (Average Daily Traffic): Annual average daily traffic is the total traffic volume for the year divided by 365 days, generally performed by mechanical counting instruments. The resulting count is adjusted to an estimate of average daily traffic by compensating for seasonal influence, weekly variation, and other variables which may be present.

Alluvial (soil): A general term for clay, silt, sand, gravel, and other unconsolidated materials that have been washed down by streams and deposited.

AV (Assessed Valuation): The value placed on privately owned property by local public officials, as a basis for computing local property taxes. It is generally some fraction, such as one-fourth, of the fair market value.

B
BDE: A daily energy consumption unit; barrels per day of fuel oil equivalent. One billion BTU has the energy equivalent of 160 barrels of fuel oil.

BAAPCD: Bay Area Air Pollution Control District, the regional air quality regulatory agency.

BCDC, San Francisco Bay Conservation and Development Commission: The Commission has jurisdiction over open water, tidelands, marshlands subject to tidal action up to five feet above mean sea level. Its responsibility is to provide public access (to the Bay shoreline) and control of fill in the public interest and enhance the attractiveness of shoreline development. In addition, it has the authority to reserve land for future public (and certain private) facilities.

Benthos, benthic: Animal or plant life which inhabits the floor of a sea, bay, or other body of water.

Glossary IX-1

Berm: A nearly horizontal or landward-sloping bench, shelf, ledge or narrow terrace on a beach, formed by materials thrown up and deposited by storm waves.

Biomass: Amount of living matter in a unit area or volume of habitat.

BOD (Biochemical Oxygen Demand): A measure of the weight of dissolved oxygen (DO) consumed in biological processes which degrade organic matter found in water.

Brownout: A curtailment of the use of electric power, especially display lighting for conservation purposes.

BTU (British Thermal Unit): The amount of heat required to raise the temperature of one pound of water one degree Fahrenheit.

Carboxyhemoglobin (COHb): A form of carbon monoxide poisoning, occurring in the blood stream. A normal COHb content in a person's blood runs less than two percent; habitual smokers average five percent; death occurs at approximately ten percent.

CO: Carbon monoxide.

Collector: A device which intercepts sunlight for use in solar energy systems.

C.S.R.R.P.: Central San Rafael Redevelopment Plan

C.T. (CT): Census tract.

CUM: Cumulative effects.

C.Y.: Cubic yards.

D: Planned by the developer.

Glossary IX-2

dB (Decibel): A unit used to measure sound. It represents the smallest increase in sound intensity which may be perceived by the human ear.

dBA: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and high frequencies of sound in much the same manner as the human ear and gives good correlation with subjective reactions to noise.

Differential Settlement: Non-uniform sinking or uneven lowering of different parts of an engineering structure, often resulting in damage to the structure.

Diurnal: Daily activities that are completed and/or recur in a 24 hour cycle.

DNOD: California State Resources Agency, Department of Navigation and Ocean Development. An administrative agency which promotes and fosters (through grants and loans) marine recreational activities.

Effluent: That which flows out, as in sewage. When sewage is treated the liquid which is disposed of in streams or a body of water is the effluent.

EIR (Environmental Impact Report): In October 1972, the California Supreme Court in Friends of Mammoth vs. Mono County held that private development projects, as well as public programs and projects, require EIRs before they can be approved by local planning agencies.

EPA (Environmental Protection Agency): A federal agency that is charged with the coordination and monitoring of research pertaining to environmental management. EPA has broad powers to require compliance to the environmental quality standards which it evokes.

Eutrophication: The process by which a body of water becomes so rich in nutritive compounds that algae and other microscopic life become superabundant, thereby choking the lake and causing it to dry up.

Glossary
IX-3

Finish Grade: The desired and final grade level of soil that has been preselected in the engineering design of the site.

G/l: Grams per liter. A measure of suspended solids as in air or water.

GPCD: Gallon per capita per day, a unit of consumption or production pertaining to water or sewage, respectively.

Gravity Utilities: Both water and sewage services are considered gravity utilities because they either make use of or must oppose the force of gravity in entering and exiting a site.

Headway: The time interval between two vehicles traveling in the same direction on the same route.

Heterotrophs: Animals or microorganisms which require complex compounds of nitrogen and carbon for metabolic synthesis.

Imp: Materials that are imported from an off-site location.

Inc: Increments.

Incremental Development Tax: The difference in public revenues obtained from a parcel over a period of time in which the tax rate remains the same but the assessed valuation of the parcel changes.

Inversion: A condition of the lower atmosphere in which the temperature of rising air does not cool, generally resulting (in urban areas), in a concentration of smog which spreads horizontally rather than vertically.

K-M, Keyser-Morston and Associates: A local San Francisco private economic consulting firm. K-M prepared the Market Analysis for the CSRRP.

Ldn: Day-night sound level.

L10: Intrusive sound level.

Glossary
IX-4

L50: Average sound level.

L90: Background sound level.

Level of Service: An attempt to relate the quality of traffic flow to the quantity. Level "A" (unrestricted flow) to Level F (extreme congestion or 'stop and go').

Liquefaction: The sudden temporary transformation of cohesionless soil or packed sediment into a fluid mass, caused by a shock or seismic tremor.

Mg/l: Milligrams per liter; see also G/l, grams per liter.

MIT: Mitigation measures.

MMMD, Marin Municipi Water District: The MMMD provides water service to most of Marin County, including San Rafael.

OFF: Off-site effects.

ON: On-site effects.

Oxidants: Oxidizing agents; in air pollution oxides of nitrogen and reactive hydrocarbons contribute to the oxidant level.

P: (Mitigation measures are) included in EIR.

pH: An expression of alkalinity and acidity ranging from 0 to 14, alkaline to acid, with 7 representing neutrality.

ppb: Parts per billion.

pphm: Parts per hundred million.

ppm: Parts per million.

Glossary
IX-5

Primary Treatment: The first, and often the only, treatment given to raw sewage collected from household and commercial sources, in which the waste material is piped into settling tanks where suspended solids are precipitated by gravity and the BOD is partially removed from the liquor.

PUC: California State Public Utilities Commission.

R.A.: Redevelopment Agency. See Section V for a brief description of the R.A.'s function in San Rafael.

Secondary Treatment: After the effluent is discharged from the primary treatment tanks it is subjected to biochemical action, either through the activated sludge process or with trickling filters and is piped into final settling tanks and subsequently chlorinated. After such treatment approximately 90 percent of the suspended solids and BOD have been removed.

Seiche: An oscillation of an enclosed or semienclosed body of water that continues after cessation of the original force, usually caused by an earth tremor.

Shoal: A submerged land surface in the bed of a shallow body of water, consisting of, or covered by, unconsolidated material which may be exposed at low water.

Siltation: Deposition or accumulation of sediment.

Slope Gradient: The angle of slope (earth). It is usually expressed as a ratio of rise to run (tangent).

Sludge: The concentration of solids withdrawn from the combined waste stream of sewage and industrial wastewater in the treatment process.

SMIP: Strong Motion Instrumentation Program, for seismic research.

SMSA (Standard Metropolitan Statistical Area): The term developed by the U.S. Bureau of the Census to describe urbanized areas. As of 1970, there were 247 SMSA(s) in the United States and Puerto Rico.

Glossary
IX-6

1 Spills: The material dredged up from the bottom of a bay, river or sound.

2
3 S.R. (SR): State Route.

4
5 Storm Water: Direct runoff of water from impervious surfaces.

6
7 Toxicant: A poisonous agent.

8
9 Tsunami: A tidal wave produced by an earthquake or volcanic eruption; it
10 may travel for thousands of miles.

11
12 U.S.G.S.: United States Geological Survey. An agency of the U.S. Depart-
13 ment of Interior charged with locating water and mineral resources and
14 informing the public of these matters.

15
16 U.S.R. (USR): United States Route (highway).

17
18 United States Army Corps of Engineers: A federal regulatory agency whose
19 jurisdiction extends over all wetlands including the San Francisco Bay up
20 to the mean high (or higher) water mark.

21
22 VMT: Vehicle miles traveled.

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36
Glossary
IX-7

WILLIAMS, PLATZER & MOCINE / CITY & REGIONAL PLANNING
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 STEVEN W. WILLIAMS, A.I.P. RUDOLPH PLATZER, A.I.P. GORDON MOCINE, A.I.P.

15 June 1977

Mr. Felix E. Smith
 United States Department of the Interior
 Fish and Wildlife Service
 Division of Ecological Services
 2600 Cottage Way, Room E-2727
 Sacramento, CA 95825

Dear Mr. Smith:

Thank you for your comments on the East San Rafael Redevelopment Plan Draft Environmental Impact Report. We will answer your comments in the order they were presented.

1. We agree that the lowland-wetland area (Holiday Magic Property) south of the proposed Marina is of importance relative to wildlife habitats in that area and mitigation measures now included in the revised Plan (see "Urban Design and Development Policy Statement for East San Rafael", May 17, 1977) and the Final EIR (see Summary of Mitigations, I-13, and Biology VI-E-11) will reflect this.
2. While the title of the land-use designation has remained the same the plan now specifically recommends that 55 acres be restored to tidal action as wetland habitat.
3. The five acre spoils site has been deleted from the Plan.
4. This sentence has been changed from "The impact will not be severe" to "The impact, while extensive will not involve any other than common animal forms."
5. The area recommended for marsh reconstruction with dredging spoils is removed from tidal action and is altered from its original state, however, a statement has been added to indicate that "a more satisfactory mitigation is to restore diked or altered wetlands in another area to tidal influence" (I-12).
6. The severity of impacts has been noted; see Summary of Mitigations page I-13 and Biology, page VI-E-10.
7. The concept of using shallow areas of the Bay for dredge spoil disposition has been deleted from the Plan.

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Mr. Felix E. Smith
 Page 2

8. The text of the Final EIR has a more detailed description reflecting changes in the Plan (p. III-13).
9. This has been noted in the EIR in the impacts analysis section (p. I-7) and in the Biology section (p. VI-E-10).
10. This statement is debatable. There have been studies done which indicate the marinas provide productive habitats for certain waterfowl and in addition create habitats for some types of sports fish.
11. An indication of the value of mudflats and their use is shown in Appendix B-1 with a detailed list of shore birds sighted in the vicinity of the project. In addition, a discussion in the impacts analysis of the Biology section (VI-E-9) mentions the need for mudflats in supporting benthic organisms which in turn are a key link in the food chain for water fowl.
12. This paragraph has been changed to read "...site south of Spinnaker Point has little natural habitat value for nesting waterfowl".
13. The statement on page VI-E-6 refers to natural habitat value of the site which has unfortunately already been lost. There still remains significant use of these areas by various animal forms as indicated in an earlier part of this section (VI-E-3).
14. We agree with this comment and significant measures have been taken on the part of the City of San Rafael in order to mitigate the loss of wetlands in the project area.

The City of San Rafael, after meeting with the reviewing agencies developed a mitigation plan which proposed a series of trade-offs to reduce the loss of wetlands and restorable (behind dikes) wetlands. The mitigation measures included preservation and restoration of approximately 80 acres of wetlands (not including a 55 acre portion of the Holiday Magic property which will be preserved). In addition the mitigation plan included trade-offs outside of the Redevelopment Area.

The City requested the firm of Madrone Associates to review the Marina site to determine how much of the site when developed will result in a net loss to wildlife habitats, recognizing the U.S. Wildlife Service concern for locating dredging spoils in this area. The Madrone Study, utilizing the Service's criteria, determined that there would be a net loss of "habitat units" which could be compensated for by restoring a portion of the Holiday Magic property.

The City of San Rafael has recently prepared a revised plan and revised Map #2 which indicate detailed mitigation trade-offs which hopefully will alleviate your concerns on the loss of wetlands. A summary of these mitigation measures is as follows:

Mr. Felix E. Smith
Page 3

Map Designation

Mitigation Measures

- 1 Upgrade Seastrand Marsh -- opening it to tidal action.
- 2 Acquisition of land adjacent to Pickleweed Park, upgrading recreational facilities and preserving marsh.
- 3 Preservation of tidal marsh north of Spinnaker Point -- property to be dedicated to the City.
- 4 a, b, c, d, e, f Development of Shoreline Park from southern City boundary to Marina.
- 6 The addition of 35 acres of surface area to the Bay with construction of the Marina.
- 5 Preserving the Lagoon in the Spinnaker Point Site.
- 7 Fifty-five acres of the Holiday Magic property are recommended for preservation and restoration to wetlands habitat.
- 8a, 8b, 9 Drainage District ponds are to be preserved along with three existing ponds on the southern perimeter of the Redevelopment Area.
- 10 San Quentin Ridge will be preserved as a permanent open space.

These proposed mitigating trade-offs will be included beginning on page I-13 of the Final EIR. In addition your letter has been attached to the Final EIR.

Sincerely,

Steven Donaldson

STEVEN DONALDSON

DS:ch

cc: Herbert Hotchner, Planning Director, San Rafael
J. Stanley Ott, Assistant Director, San Rafael Redevelopment Agency
William Birckham, Division Chief, State Clearinghouse, OPR

STATE OF CALIFORNIA

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

300 SAN MATEO AVENUE
SAN FRANCISCO, CALIFORNIA 94102
PHONE: 357-2484



EDWARD G. BROWN JR. Governor

October 20, 1976

CITY of San Rafael
Redevelopment Agency
P. O. Box 60
San Rafael, California 94902

ATTENTION: J. Stanley Ott

SUBJECT: East San Rafael Redevelopment Plan, SCR #7609089
BDC Inquiry File No. MR-SR.6925.1

Gentlemen:

This letter is for the purpose of transmitting comments on the Draft Environmental Impact Report (EIR) on the "East San Rafael Redevelopment Plan," August, 1976. Although the Commission has not had an opportunity to review the draft report, the BDC staff has done so with particular concern for the Commission's jurisdiction and policies as set forth in the National Historic Act and the San Francisco Bay Plan, and the following comments are the result of that review.

1. As an initial, general comment, we would like to note that the EIR appears to be carefully done and adequately covers most of the impacts associated with the overall redevelopment plan for the subject area. As the EIR correctly states, however, many of the impacts related to the proposed projects can only be determined when detailed plans for those projects are completed and can be reviewed. In that connection, therefore, it should be noted that comments, or the absence of comments, relating to the EIR for the overall plan should not be construed to indicate any position or commitment of the Commission to any specific project that may be undertaken in the area of its jurisdiction.

2. The EIR states (page II-2) that preliminary plans and draft EIRs for two projects within the area covered by the subject EIR have already been prepared and that inconsistencies may occur between the reports on the specific projects and this general report. Since BDC has been requested previously to comment on those specific project reports also, those comments should be considered to be supplementary to these comments on the report covering the entire plan area. It should also be understood that there may be other matters that may be of concern which action is taken on any permit application.

b. Use of Proposed Within 100-Foot Landward of the Line of Highest Tidal Action: The "100-Foot Shoreline Band." Because of the overriding importance of the shoreline of San Francisco Bay as an area for enjoyment for the public generally, free public access to the Bay and shoreline should be an integral part of the plan for any proposed project. The report indicates (s.e., page IV-17) that some proposed development in the area may be planned to provide only private, exclusive owner access to the shoreline and the Bay. If free public access is not possible in such developments, then the lack of it should be subject to the same test for adequate mitigation measures as would the loss of any other resource. A general requirement for such public access and/or satisfactory mitigation measures if it is lacking should be made a part of the sponsoring agencies' project review and approval process. Under the policies of the San Francisco Bay Plan and the provisions of the McAteer-Petris Act these matters will be a necessary part of any project proposed for development within the BDC jurisdiction.

c. Ownership of Tide and Submerged Lands. The BDC does not appear to consider the matter of ownership of tide and submerged lands, including marshes and mudflats, in the East San Rafael Redevelopment Plan area, and does not discuss whether steps will be taken by the sponsoring agencies or others to insure the permanent preservation and maintenance of such areas. The maps and other exhibits in and submitted with the report appear to indicate that there are sizable areas of tide and submerged lands in the area that may be owned or claimed by public or private agencies, organizations or individuals. We believe these areas should be discussed in the report and that such discussion should include the type and extent of ownerships, the plans for the preservation of such areas, methods for establishing and maintaining a permanent shoreline, and, if necessary, proposed plans for the mitigation of possible future loss or damage through development, lack of maintenance, or other causes.

4. In Part V, "Relationship to Other Projects and Public Plans," we note that there is no discussion of the relationship of the East San Rafael Redevelopment Plan to the San Francisco Bay Plan. Since the Bay Plan policies and the provisions of the McAteer-Petris Act will be applicable to any development or portion of development subject to the jurisdiction of the BDC, it seems appropriate that there be some discussion of the relationship of the redevelopment plan to the Bay Plan and this law.

5. Part VI, "Land Use Conditions," indicates that deficiencies of low-and-moderate income housing and recreational/open space areas in the planning area will exist if the area develops as proposed. While recognizing that the sponsoring agency will be responsible for deciding how those deficiencies will be corrected, we think it appropriate to point out that the provision of different types of housing should be made on existing upland areas and should not be planned for development in tidal areas, including marshes or mudflats. We suggest that the paragraph headed "Mitigation" on page VI-3 be modified to indicate this reservation, which is consistent with the policies of the San Francisco Bay Plan and provisions of the McAteer-Petris Act. Mitigation is not a justification for filling the Bay for non-water-related uses such as housing.

1. Three major areas of impact throughout the East San Rafael Redevelopment Plan are of concern to BDC: (a) the use proposed and their impacts on tide and submerged lands, including marshes; (b) use proposed in the 100-foot shoreline band area, which is measured landward from the line of highest tidal action; and (c) public access to be provided in the 100-foot shoreline band; and (d) the nature and extent of the ownership of tide and submerged lands whether proposed for development or not. Each of these areas of concern is discussed in the following paragraphs.

a. Tide and Submerged Lands, including Marshes. The BDC adequately states that most of the impact associated with proposed developments in or near these portions of the planning area and properly stresses the importance and scarcity of resources being impacted. In page IV-7, the report notes that the proposed development North and Central South developments will seriously and adversely affect the only two remaining salt marshes in the East San Rafael area. In discussing possible mitigation measures that might be taken to compensate for or offset the losses to or loss of these marsh areas, the report suggests that new marshes "may be created by depositing dredge spoils from the proposed marina at some point south of the marina site. It is impossible to determine, because of the absence of details in the proposed developments and because of the broad scope of the redevelopment plan, whether such a mitigation proposal is feasible, technically and economically, and whether it would result in an area of productive salt marsh habitats that would adequately make up for the loss of other areas. For this reason, it would be premature to indicate that creation of a salt marsh area in deposition of dredge spoils south of the proposed developments and the proposed marina would constitute adequate mitigation for the loss of marshes, mudflats or other tidal areas throughout the East San Rafael Redevelopment Planning area.


We strongly concur with the last two sentences on page VI-2-11 stating: "Of course any construction impacts which result in the destruction of marshes need to be mitigated. Excessive siltation or other pollution fall into this category." Since the report does not indicate that specific mitigation measures have been considered for such impacts, there should be some commitment by the sponsoring agencies, the City of San Rafael and the Redevelopment Agency, to determine what specific mitigation measures be included in plans for projects that result in such impacts.

The BDC discusses the impacts resulting from dredging and other construction in the marina project and the channel connecting it to the Bay. While several mitigation measures are discussed, it should be noted that a report: BDC has been prepared for the marina project and the BDC comments in that report set forth a number of steps that should be taken to adequately approach the mitigation matter. Those comments should be referred to and are repeated here. It should be noted, as a general matter, that proposals for new marsh creation in the Bay as a means of disposing of dredge spoils will have to be considered in relation to the losses of other resources such as marshes and other tidal areas. This is also true of proposals for creating new shoreline configuration or added recreation and public access areas through disposal of dredged spoils. The benefits to be gained from new shoreline and marsh creation should be weighed against the loss of other offset adverse impacts. The BDC report also sets forth a number of steps that should be taken to approach the mitigation matter.

City of San Rafael
October 20, 1976
Page Four

We appreciate having had the opportunity to comment on this report and hope these comments will assist the sponsor in preparing a final EIR that will comply fully with the California Environmental Quality Act. We feel that the draft report has been capably and conscientiously done and indicates a careful, productive concern for the environment.

Sincerely,


CHARLES R. ROBERTS
Executive Director

CRP/

cc: L. Frank Goodson, Project Coordinator, Resources Agency

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STONEY M. WILLIAMS, A.I.P. RUDOLPH R. PLATZKE, A.I.P. CORWIN R. MOCINE, A.I.P.

15 June 1977

Mr. Charles R. Roberts
Executive Director
San Francisco Bay Conservation and Development Commission
30 Van Ness Avenue
San Francisco, CA 94102

Dear Mr. Roberts:

Thank you for your comments on the East San Rafael Redevelopment Plan Draft Environmental Impact Report. We have attached your comments to the Final EIR and addressed them in the order they were presented.

1. This comment will be noted with the inclusion of your letter in the Final EIR.
2. This comment will be noted as mentioned above.
3. a. Tide and Submerged Lands, including Marshes.
Several changes and refinements to the original plan have been made.
The two private marinas and the Seastrand South housing project have been dropped from the plan. The two remaining marshes will be preserved and restored by opening them to full tidal influence.
The disposition of dredging spoils south of the Marina has been dropped from the plan. This area (the Holiday Magic property) will have 55 acres restored to tidal influence and preserved as wetlands.
Commitment in the form of changes and mitigations in the plan include preserving the two marshes as mentioned above; preserving the lagoon on the Spinnaker Site along with two other lagoons south of the Marina and preserving three ponding areas in this area; in addition further detailed mitigations are included in a Wildlife and Open Space Mitigation Plan developed by the City of San Rafael determined after communications with water quality and wildlife agencies, as well as with BODC. (See also revised Plan Map #2)

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Save San Francisco Bay Association
P. O. Box 923 • Berkeley, California 94701 • (415) 849-3463

September 16, 1976

City of San Rafael, Planning Department
P.O. Box 60
San Rafael, CA. 94902

The Save San Francisco Bay Association welcomes the opportunity to comment on the Draft Environmental Impact Report for the East San Rafael Redevelopment Plan of August 1976. We would appreciate having the following points commented on in the final Environmental Impact Report:

1. Project Description, page III-1: a more definitive description of the Seastrand South development plans is needed. Will the site be housing or open space?

2. Project Description, Page III-2: On line 14, the report states that it would be desirable that the 100-foot shoreline band be dedicated by landowners in the industrial area for open space. What are other alternatives to this dedication, and what would be the subsequent impacts if the developers were not willing to give this access? What kind of implementation of the Redevelopment Plan's open space policy can be achieved here?

3. Geographic and Topographic Conditions, page VI-1-2: the report inadequately discusses the adverse impacts of the "nose" fill area. Since this "fill" is a specific item in the plan, it should be discussed in more detail. Further description is needed of the overall impacts of "fill", both historic and proposed, on topography and hydrology.

Strent malden

Ballard, David, Jr., Jr.
 Mrs. Mary Lee Keller
 R. 100
 Thompson, S. J. 100
 Mr. Carl Kern
 VICE PRESIDENT
 J. Tim. Hill 100
 Mrs. B. H. Hill 100
 SECRETARY
 Ronald K. Hill 100
 Miss Joan M. Smith
 Donald C. Davis
 Mrs. David N. 100
 Fred H. Terry
 Mark Tremblay
 Donald A. 100

4. Land Use Conditions, page VI-H-3: the report inadequately studies the impacts associated with the loss or relocation of Pickens Park and the loss of the open space/perational qualities of the undeveloped areas of Seastrand North, Seastrand South and Seastrand Point. This should be considered an irreversible environmental change.

Sincerely,
William E. Sird
President

William Sirl
2 June 1977
Page 2

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2 June 1977

Mr. William E. Sirl, President
San Francisco Bay Association
P.O. Box 925
Berkeley, CA 94701

Dear Mr. Sirl:

Thank you for reviewing the East San Rafael Redevelopment Plan Draft Environmental Impact Report. The Plan had gone under some changes since the DEIR was prepared. As a result we hope most of your concerns will be allayed. Our responses to your comments follow:

1. Seastrand South has been purchased by the City of San Rafael. The plan now designates its land use as recreation and open space wetlands. The park plan for the area will include expansion of existing facilities, an area to be planted with indigenous vegetation, and an area to be restored to tidal action. The existing marsh area of Pickleweed Park will remain in its existing state.
2. Alternatives to the 100 foot shoreline band dedication are relatively limited. First of all, this area is totally within the jurisdiction of BCDC and one of BCDC's major policies is to promote public access to the Bay wherever possible. The chances that BCDC will permit any development that does not provide for public access in this 100 foot area is unlikely. Given this situation, land owners would be limited in their development of this land. Therefore, at such time as owners applied to the City for permits by the Planning Commission to develop other portions of their property, they would dedicate this 100 foot strip.

In addition, a property owner in the southern-most location of the industrial area has already dedicated a 100 foot open space frontage on his parcel.

Implementation of the Redevelopment Agency's open space policy in this area is being done through the dedication of 100 foot open space band along the waterfront which already has begun.

3. The "nose" has been eliminated from the Plan. Bay fill is not part of this Plan now that this has been eliminated. All dredging spoils will

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be relocated within the Spinnaker Point site as part of the grading plan.

4. Seastrand South, as mentioned above, has been purchased by the City of San Rafael for open space. Pickleweed Park will not be relocated but will be expanded. Changes in the Plan call for improved recreational facilities in this area.

The Seastrand North marsh area will be preserved. The property north of the marsh is designated for single family residential land use and will be developed with the following criteria in mind: slope stability, open space value of the hills, preservation of wooded areas on the site and methods in which the marsh below can be improved and protected.

On the Spinnaker Point Development Site, a lagoon area of 5 acres will be maintained. In addition, adjacent to the lagoon and along the marina entrance channel, pickleweed and other native vegetation will be planted to provide a tideland habitat for wildlife in the area.

Sincerely,

Steven Donaldson

Steven Donaldson

SD:rr

cc: Herb Hotchner, Planning Director, City of San Rafael
William Kirkham, Division Chief, State Clearinghouse, Office of
J. Stanley Ott, Assistant Director, San Rafael Redevelopment Agency



Martin Audubon Society Box 441 Tiburon, California 94920
September 16, 1976

Planning Department
City of San Rafael
P. O. Box 60
San Rafael, California 94902
Re: Draft Environmental Impact Report
East San Rafael Redevelopment Plan

Sirs:

Thank you for the opportunity to comment on the Draft EIR of this redevelopment plan. This is an area in which Audubon members have been interested for many years, as it is such a delightful place to walk, and is extremely rich in birdlife. Any development on this waterfront will have a profound effect on this birdlife, and on the many people who enjoy this area as open space.

The following are comments on specific sections of this EIR:

Summary (Page I-2, lines 13-14.) The EIR claims impact on wildlife habitat will not be severe as the animal forms involved are common types. This statement is false on both counts. Impact will be severe, as present habitat is densely populated at both migratory and nesting seasons. Bird species involve some very rare birds.

(Page I-2, line 23) The EIR claims "placement of dredge spoils to create new marshlands is a recommended mitigation measure." No biologist recommends deposition of spoils in areas already rich in wildlife values (such as is the case of the wet-season lagoon south of the proposed marina.) Nor does anyone recommend deposition of spoils outside of dikes (such as is proposed in the "nose" area of this plan.)

(Page I-7) We feel the statements under Biology should more clearly reflect the impacts on wildlife. Impact will be severe.

Description (Page III-2, lines 22-26.) This describes a "nose" projecting more fill from the dike to the bay. It was our understanding that this had been deleted from the East San Rafael plan. Citizens around San Francisco Bay have made it very clear (through BODC) that there is to be no more filling of our Bay. Shoreline Park should expand to the west here instead of the east.

A Branch of National Audubon Society



Martin Audubon Society Box 441 Tiburon, California 94920
East San Rafael Redevelopment Plan EIR

2

(Page III-2, lines 28-29.) We have not seen detailed plans for a community recreation area here. However, Map 3 shows parking and retail in the adjoining area to the south, which is a pickleweed marsh. This would be extremely destructive to the Lagoon Park wildlife area, but is not mentioned by the EIR.

Geographic Conditions (Page VI-A-2, line 11.) This is a false statement. Lands presently supporting rich and varied wildlife habitat, if changed to other uses as proposed, will certainly create significant adverse impact. (Lines 16-18.) It is questionable whether changes of water areas will be principally beneficial. To whom? (Present residents, visitors, wildlife?)

Hydrology (Page VI-C-9, line 29) This statement of beneficial impact is questionable. Noise, water and air pollution, and displacement of present wildlife is more negative than adding some water area to the Bay.

(Page VI-C-10, line 1.) A third mitigation measure is not listed: that of providing a natural buffer zone between urban development and the water. This would reduce runoff, and therefore reduce pollutants and nutrients.

(Line 18) We applaud the consideration of using reclaimed wastewater. It would appear, moreover, that this would be quite inexpensive, contrary to the statement in the EIR. The sanitary treatment plant is nearby, and the marsh plants and organisms could take care of nutrient removal.

Biology (Page VI-2-1) This section is quite deficient. Under Mudflats, line 11, there is no discussion of birdlife dependent upon these mudflats. Audubon members have counted 800 white egrets at one time feeding along the San Rafael waterfront, and there are many other species feeding here as well. Many areas of the San Rafael waterfront are prime feeding grounds for the major heronry on West Marin Island, just offshore, and there is no discussion here of the importance of this interrelationship.

(Page VI-E-2, line 15.) There is no appendix B-1 in our copy of this EIR.

(Page VI-E-2, line 24.) There are not two saltmarshes here but three. The third is directly east of the sewage treatment plant.

Page VI-E-3, line 24.) This is a false statement, that there is little habitat value here. This also conflicts with the following discussion on the next page.

A Branch of National Audubon Society

Marin Audubon Society Box 441 Tiburon, California 94920

East San Rafael Redevelopment Plan EIR

3

(Pages VI-2-5, lines 13-14) The quote from the San Quentin landfill is unfortunate, as there is no evidence that a biologist conducted such a search. Contrary to this section, many of the lowland sections, though highly disturbed by diking several years ago, are much used by wildlife, and there are several rare species found in the plan area.

(lines 30-35) The EIR should also be corrected to note that both the white-tailed kite and the burrowing owl are present here, and their habitat would obviously be greatly affected by development.

This EIR is quite lacking in information showing the diversity and richness of species inhabiting San Rafael bayfront areas. It cannot show impacts if it does not take the trouble to investigate what is there.

Adverse Impacts (Page VI-B-6) This section should be rewritten to reflect more accurately the richness in wildlife habitat provided presently by the San Rafael bayfront. Major adverse impacts have occurred in the past due to diking and filling, it is true, but equally major adverse impacts on wildlife will take place if current redevelopment plans are not revised.

Mitigation measures can include setting aside the Lagoon Park for wildlife with addition of summer tidal waters. They can include buffer areas between Lagoon Park waters and development, both on the marina side (north) and industrial sides (south and west.). They can include breaching eastern dikes along Lagoon Park to provide protection of wildlife on dike "islands", and they can include routing the walking trail along the western side instead. Mitigation measures can include an expanded open space zone along the proposed Shoreline Park, especially fronting the industrial area. In the canal areas, mitigation can include preserving the shoreline park and marsh at Seastrand North from development. It can include park and wildlife area instead of a Seastrand South development.

Page VI-B-10, lines 5-10. Two mitigation measures are listed here. If this EIR is to list some of the requirement for mitigation along the bayfront (as it does) which are listed in the other EIR's (Marina and Spinnaker Point), all requirements should be listed to make this aspect of the plans perfectly clear. Additional points beyond the three listed would be 4) loss of habitat used by rare bird species around Spinnaker Lagoon, 5) Encroachment of the public and of domestic animals on valuable habitat along the bayfront, and 6) Encroachment of same around Lagoon Park and its marsh.

If we can be of further help in evaluating this area, please do not hesitate to call us.

A Branch of National Audubon Society

WILLIAMS, PLATZKE & MOCINE / CITY & REGIONAL PLANNING
221 CALIFORNIA STREET SAUSALITO CALIFORNIA 94065 TELEPHONE 415 312-3892
STONEYM WILLIAMS, A.P. RUDOLPH R. PLATZKE, A.P. EDWINA MOCINE, A.P.

3 June 1977

Donald Samson
Marin Audubon Society
P.O. Box 441
Tiburon, CA 94920

Dear Mr. Samson:

Thank you for reviewing the Draft EIR on the East San Rafael Redevelopment Plan. We are responding to your comments in the order in which they were presented and also have attached your letter to the Final EIR.

Summary (Page I-2, lines 13-14) The summary states "The impact, while extensive, will not involve any other than common animal forms. However, the impact on the adjacent native habitats, marshes and notably, the mudflats will be severe." It is in these adjacent indigenous areas where the impact will be the most detrimental and where our biologist's major concern lies.

(Page I-2, line 23) The use of dredge spoils and sewage waste to create marshlands is apparently a new concept. A recent San Francisco Chronicle article, January 19, 1977, page 4, discussed the favorable reception given to the "conservation concept" at a hearing in Oakland conducted by the Regional Water Quality Control Board. Among supporters of the idea were the Marin Audubon Society and the California Waterfowl Association.

In addition the disposition of dredge spoils in the wet-season lagoon to recreate a marsh habitat could increase the available nesting areas to water fowl in the area. This would not decrease the "richness" of the area in terms of wildlife but enhance it.

It is also mentioned in the Final EIR (page I-2, line 25) "...a more acceptable and satisfactory mitigation for destruction of restorable wetlands would be to restore diked or altered wetlands in another area to tidal action of the Bay."

Description (Page III-2, lines 22-26) The "nose" has been deleted (page III-2, lines 28-29). There is no picketweed in the marsh area you identify although we do agree that it is an environmentally sensitive area whose alteration or loss should be mitigated.

ASSOCIATES: MARGARET W. BUSCH, A.P. KANDRA MALANDRA STEVEN DONALDSON
BETTY L. BAYNE DR. HOWARD S. LAPIN

Environmental Planning • Urban Design • Human Services Planning • Economic Development Studies

Mr. Donald Samson
Page 2

Geographic Conditions (Page VI-A-2, line 11) We feel these altered lands constitute feeding-resting places rather than habitat for birds from habitats in other locations. Some of the changes in water areas will have adverse impacts and they will be mitigated by providing prime marshland in areas presently filled or diked. These areas on Plan Map, Fig. 3, include improvements to Seastrand Marsh; reopening it to tidal action, preserving Pickleweed Park and the neighboring marsh, and a suggestion that the seasonal lagoon area south of Spinnaker Point have fifty-five acres retained as open space. The changes in the water areas would benefit both visitors and nearby residents by improving public access to many of these areas in addition, the restoration and opening to tidal influence of some water areas will improve wildlife habitats.

Hydrology (Page VI-C-9, line 29) We concur. Increasing the area of the Bay is not proposed as mitigation for noise, water and air pollution. Other mitigations, however, are proposed (Page VI-C-10, VI-D-15 and VI-J-11) which we feel are valid.

(Page VI-C-10, line 1) The shoreline park areas which border the entire bayfront are seen as part of the plan and therefore, are not proposed as mitigation. However, buffering around lagoon and ponding areas will be suggested as mitigation (VI-E-10).

Line 18 Unfortunately, this mitigation is not permitted by the Regional Water Quality Control Board and has been eliminated. See letter to that agency.

Biology (Page VI-E-1.2) The importance of those tidelands in relation to Birdlife is recognized and we have attempted to indicate this by listing the important birdlife observed in the area in Appendix B-III. Appendices have all been included in the Final EIR.

(Page VI-E-2, VI-E-3, VI-E-5) These comments require clarification in that the habitat use of site is distinguished from feeding-resting use of the site in the DEIR.

(Lines 30-35) The Final EIR indicates that both the white-tailed kite and the burrowing owl are present at the site. Apparently, your copy of the DEIR had several Appendices missing. We hope you will find the information in the Final EIR accurate and reflective of the many species observed in the Plan area.

Adverse Impacts. Many of the mitigation measures you propose have been included in the updated Plan on pages 6, 7 and 8 under the heading "Implementation--Open Space/Wildlife Preservation." See updated Plan Map, Fig. 2. In addition, your comments were very helpful for they arrived early enough that all of the proposed mitigations were reviewed by the City before meeting with the reviewing agencies who also requested mitigation measures for numerous proposed actions in the Plan. These mitigations are summarized on Page 1-12 as mentioned earlier and represent a very concerted attempt on the part

Mr. Donald Samson
Page 3

of the City to propose a plan which does not have a significant effect on the environment.

Sincerely,

Steven Donaldson
STEVEN DONALDSON

SD:rr

cc: Herb Hotchner, Planning Director, San Rafael
J. Stanley Ott, Asst. Director, San Rafael Redevelopment Agency
William G. Kirkham, Division Chief, State Clearing House, OPR

SEP 29 1976

PLANNING

September 28, 1976

Matthew Guthrie
Planning Department
City of San Rafael
P. O. Box 60
San Rafael, California 94902

Subject: East San Rafael Redevelopment Plan
Draft Environmental Impact Report

Dear Matt:

We have reviewed the sections of the Redevelopment Plan Draft EIR and have the following comments.

Page VI - N-1: Line 3.
Marin Municipal Water District only services the southeastern portions of the County and, therefore, the entire County is not under conditions of our Moratorium. This limitation should also be clarified in Lines 25 to 27.

Lines 17 through 20.
The sentence should read "In the industrial area, McKoon Industrial Park, already largely constructed, will be permitted water service within 125 feet of the existing main along Anderson Drive for structures completed by October 31, 1979."

Lines 28 to 30.
The sentence beginning on Line 28 should be omitted.

The impact table on P. I-11 indicates that mitigations for water consumption are proposed in the report, but were apparently omitted from Section VI-A. We would suggest inclusion of information from the attached Fact Sheet in that section.

We appreciate the opportunity to review the Draft EIR. If you need any additional information, please contact Jo Duthie, our Environmental Services Coordinator.

Very truly yours,


J. Dietrich Stroeh
General Manager

MARIN MUNICIPAL WATER DISTRICT WATER SUPPLY

FACT SHEET

This fact sheet provides information about Marin Municipal Water District's supply, conservation and reclamation programs. The District presently supplies water to a population of 181,000 in Central and Southern Marin encompassing nine cities.

Supply

The present water supply comes entirely from rainfall stored in four lakes northwest of Mt. Tamalpais and Nicastro Reservoir on Nicastro Creek. These reservoirs have a total storage capacity of 52,400 acre feet. This storage provides a net safe yield of 26,000 acre feet, which is the amount of water available each year through a period of years with low rainfall and runoff.

Presently, water consumption is about 32,300 acre feet per year, 24 percent above the net safe yield. It reached 32,650 acre feet in 1969-70. If the dry period of record were to recur, present demands could not be satisfied. The District has made commitments which are expected to increase consumption to over 33,000 acre feet annually. Because of this overcommitment, any further demands on the existing water supply will constitute a significant adverse impact until this shortage is alleviated by an additional supply.

In 1970 the voters approved a general obligation bond election which provided funds for an Interim Pipeline between the North Marin County Water District and MMWD which could bring up to 4,000 acre feet annually to the District during times when excess capacity is available in NMWD's transmission line. Agreements with the NMCWD and the Sonoma County Water Agency have been approved and the pipeline is under construction. It is expected to be operational by fall, 1976.

Other ballot measures which would have enabled the District to increase its water supply were defeated in 1971 and 1973. In June 1973, the Board of Directors imposed a moratorium on future connections to the system to protect existing consumers until additional water becomes available.

The District has adopted a water supply program designed to meet the growth projections of the Marin Countywide Plan to the year 1995. The program consists of three elements: water conservation, reclamation of treated wastewater, and additional natural sources. Based on Countywide Plan population projections and current per capita consumption rates, the District will need a firm supply of 42,000 acre feet of water annually by 1995, 16,000 acre feet above the present net safe yield.

MARIN MUNICIPAL WATER DISTRICT WATER SUPPLY

Conservation

Our water conservation element is being intensified to include installation of devices to reduce the amount of water used by showers, toilets and landscaping. The District is considering a policy which would require low water use plumbing fixtures and drought tolerant landscaping to be installed throughout new developments when the moratorium is lifted. If drought tolerant landscaping is installed in conjunction with low-flow plumbing, it is estimated consumption could be reduced 20 percent.

The District and Marin County have developed a demonstration garden at the Marin County Civic Center. This garden demonstrates the use of drought resistant plants, many native to Marin County, and gardening practices which can conserve water. A booklet on drought-resistant landscaping plants and tips on watering has been prepared by a consulting botanist well acquainted with Marin County's climate and plants.

The water conservation element is expected to reduce 1995 requirements by 5,000 acre feet annually and per capita consumption to 133 gallons per day. Average annual per capita consumption throughout the District is 160 gallons per day at the present time, down from 173 gallons per day in 1970. We attribute this reduction in per capita consumption partly to the District's water conservation program and a higher proportion of multiple dwelling units. This consumption figure includes commercial and institutional use. (There is little industrial use in Marin County.)

Reclamation

MMWD has entered into agreements with Las Gallinas Valley Sanitary District and Sanitary District No. 1 to take secondary treated effluent, treat it to a higher standard and distribute it for irrigation and other appropriate uses, subject to the approval of the Regional Water Quality Control Board and the California State Department of Public Health. At Las Gallinas, the District is initially planning to construct a one million gallon per day reclamation facility to treat the secondary effluent. This water will be used initially for irrigation at Marin County Civic Center, the yet to be developed Melons Park, highway median strips and other nearby areas. At Sanitary District No. 1, the District plans to construct a one-half million gallon per day reclamation plant to distribute water for landscape irrigation, initially at the Larkspur Ferry Terminal and Lincoln Village. Future development projects which are economically near a wastewater reclamation facility will likely be required to install a separate plumbing system for irrigation water and use treated wastewater for such purposes. By 1995 the District expects to provide 2,000 acre feet annually of treated wastewater for irrigation and related purposes.

MARIN MUNICIPAL WATER DISTRICT WATER SUPPLY

Natural Sources

The District has examined numerous sites within Marin County which would be capable of providing 5,000 acre-feet of new water for present and future District consumers.

Based on preliminary studies and an environmental assessment, the Board of Directors authorized detailed engineering studies and preparation of an environmental impact report on the proposed acquisition and enlargement of the existing Soulajule Ranch Dam. This is located on the Arroyo Saual tributary to Walker Creek, four miles northwest of Nicastro Reservoir. The engineering studies have been completed and the Final EIR has been certified. Based on those findings, the project is scheduled for a bond election in November, 1976.

The following table summarizes the District's water supply program goals for 1995.

Source	Net Safe Yield Acre-Feet/Year
Present District lakes and reservoirs	26,000
Interlie	4,000
Conservation	5,000
Reclamation	2,000
New natural sources	5,000
Total 1995 Demands	42,000

New Development and Energy Consumption

Under conditions of the moratorium, the District is committed to providing water equivalent to the average provided annually over the past decade for each parcel served. This information will be made available when development plans are presented to the District.

Based on District-wide averages, energy consumption for pumping and treatment is approximately 515 kilowatt-hours (KWH) per acre foot of water. This energy is supplied by Pacific Gas and Electric Company which estimates more than half of its energy generation is derived from fossil fuels. Fossil fuels are a finite resource and capable of being exhausted at some future date, and should be considered in each plan which would increase water consumption.

Revised
8/76

JD:mr

of California

emorandum

WILLIAMS, PLATZEK & MOCINE / CITY & REGIONAL PLANNING
231 CALIFORNIA STREET SAUSALITO CALIFORNIA 94065 TELEPHONE 415 332-2892
SYDNEY WILLIAMS, A.P. EUGENIE PLATZEK, A.P. CORWIN MOCINE, A.P.

2 June 1977

Mr. J. Dietrich Stroeh
Marin Municipal Water District
220 Nellen Avenue
Corte Madera, CA 94925

Dear Mr. Stroeh:

Thank you for reviewing and commenting on the sections of the East San Rafael Redevelopment Plan Draft EIR, which relate to Water Services.

We have included all of your suggested changes on p. VI-N-1 of the Final EIR. The sentence on line 28 regarding the high cost and continued need for curtailing use of water even after passage of the Sausalito Project bond has been changed to reflect the latest conditions.

Sincerely,

Steven Donaldson
Steven Donaldson

SD:rr

cc: Herb Hotchner, Planning Director, San Rafael
William G. Kirtham, Division Chief, State Clearinghouse, OPR
J. Stanley Ott, Assistant Director, San Rafael Redevelopment Agency

Associates: MARGARET W. BUSCHE, A.P. XANDRA MALANDRA STEVEN DONALDSON
BETTY L. BASYE DR. HOWARD S. LAPIN
Environmental Planning • Urban Design • Human Services Planning • Economic Development Studies

to 1) L. Frank Goodson
Projects Coordinator
Resources Agency
2) City of San Rafael
P.O. Box 60
San Rafael, CA 94902

from: Air Resources Board

Date: September 27, 1977
Subject: East San Rafael
Redevelopment Plan
Marin County
SCH No. 76090639

We have reviewed the draft environmental impact report (DEIR) for the East San Rafael Redevelopment Plan which proposes new uses and developments to the southern half of the Central San Rafael Redevelopment Area. The DEIR proposes a small development of high cost housing and areas for commercial and industrial locations.

The DEIR comments that the plan area has a high potential for contaminant accumulation and contributing to exceeding the national/state ambient air quality standards. Furthermore, the DEIR comments that the high cost housing would not be optimal for the economy of San Rafael or the success of the East San Rafael project as a whole, and these houses would be occupied by persons that probably would not work in San Rafael and will reinforce a continued reliance and orientation toward the automobile.

The DEIR needs to include the estimated total tons per day of air pollutants that will be generated after the project's completion and these estimates need to be compared to the San Rafael area pollutant emissions. Also, the DEIR needs to discuss the cumulative effect that this project and the other projects (e.g., Spinnaker Point and Marina) within the area will have upon San Rafael's air quality.

The decision makers need to know that this project is within an air quality maintenance area (AQMA) and air quality maintenance planning (AQMP) task force teams are presently formulating methods for integrating air quality considerations in land use planning decisions as part of a total package of strategies that will assure the attainment and maintenance of the National Ambient Air Quality Standards. We urge the decision makers to incorporate air quality considerations into their decisions by reviewing project impacts carefully and implementing feasible mitigation measures and/or alternatives to the project. Tradeoffs may be required in the way of new emissions reductions or the disapproval of other projects to offset the impacts involved.

W. C. Lockett
William C. Lockett, Chief
Planning Division

cc: W. H. Lewis, Jr.
M. Nichols

WILLIAMS, PLATZKE & MOCINE / CITY & REGIONAL PLANNING
228 CALIFORNIA STREET SAUSALITO CALIFORNIA 94065 TELEPHONE 415 332 2892
STEVEN H. WILLIAMS, A.P. RUDOLPH E. PLATZKE, A.P. CURMINE MOCINE, A.P.

15 June 1977

Mr. William C. Lockett, Chief
Planning Division
Air Resources Board
1709, 11th Street
Sacramento, CA 95814

Dear Mr. Lockett:

Thank you for your comments on the Draft Environmental Impact Report
for the East San Rafael Redevelopment Plan.

Regarding air quality standards violations which would occur if the
Plan is implemented, projected CO emission values can be added to the
maximum existing background emission value of 2,500/Mg/m³ to determine
total future emission values at each roadside location listed on
Table AQ-5 page VI-D-10. It can then be shown that the 40,000 Mg/m³
standard for a one-hour peak interval will not be violated. However,
in the eight-hour peak interval violations already do occur along U.S. 101
North and South. These excessive concentrations will disperse rapidly
to non-violation values within 100 ft. (60% reduction at this distance)
from the roadway.

The estimated total tons per day of pollutants that will be generated
after the project's completion will be 3.44 tons per day (this includes:
Particulates, Organics, Nitrogen Oxides, Sulfur Oxides, and Carbon Monoxide),
as compared to the County figure used in the EIR, 689,200 pounds or
344.60 tons (produced a day in 1974). This will be an increase of
one percent over existing emissions.

The DEIR deals with the entire East San Rafael Redevelopment Area, including
Spinnaker Point and the Marina. Therefore the impacts described are
cumulative; separate impacts for each of these areas are described in
the Marina and Spinnaker Point EIRs.

We are attaching your letter to the Final EIR with the intent that
decision makers will be aware of your agency's concerns and will

ASSIGNED: MARGARET W. RUSCHE, A.P. KANDRA MALANDRA STEVEN DONALDSON
BETTY L. BASYE DR. HOWARD S. LAPIN
Environmental Planning • Urban Design • Human Services Planning • Economic Development Studies

Mr. W. C. Lockett
Page 2

Implement needed air quality mitigation measures to be developed by the
local AQIP task force.

Sincerely,

Steven Donaldson

Steven Donaldson

SD:ch

cc: Herb Hotchner, Planning Director, San Rafael
J. Stanley Ott, Assistant Director, San Rafael Redevelopment Agency
William G. Kirkham, Division Chief, State Clearinghouse, OPR



State of California

GOVERNOR'S OFFICE
OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO 95814

EDMUND G. BROWN JR.
GOVERNOR

Memorandum

TO : DEPARTMENT OF WATER RESOURCES
Resources Evaluation Office
1016 Ninth St., Rm. 70232
Sacramento, CA 95816

DATE: 10/11/76
PLANNING
RECEIVED
OCT 11 1976

October 4, 1976

FROM : San Francisco Bay Regional Water Quality Control Board
1111 Jackson Street, Oakland 94607

SUBJECT: DRAFT EIR FOR EAST SAN RAFAEL REDEVELOPMENT PLAN - SCH 76090689

SUBJECT: SCH# 76090689 - EAST SAN RAFAEL REDEVELOPMENT PLAN

Mr. Stanley Ott
Redevelopment Director
P.O. Box 60
San Rafael, CA 94902

Dear Mr. Ott:

This is to certify that State review of your environmental document is complete.

The results of the State review are attached. You should respond to the comments as required by the California Environmental Quality Act. You should address your responses to the commenting agency with a copy to the Clearinghouse.

Sincerely,

William G. Kirkham
William G. Kirkham
Division Chief
State Clearinghouse

WGK/mcd
Attachment(s)
cc: ERCDC
ARB

G. L. Johnston
Dept. of Fish and Game
Mary Schell, State Library
B. C. Bachtold

We have reviewed the subject report and have the following comments.

Recommendations

1. It has been suggested that treated wastewater could be used to maintain the water quality in ponding areas by diluting poor quality pond water. Such a discharge would be in violation of this Board's Water Quality Control Plan and should not be allowed.
2. The location of the proposed marinas should be identified and their proximity to marsh lands shown. Pumpout facilities and an appropriate receptacle for waste engine oils should be provided.
3. A long term maintenance dredging plan and spoil disposal area should be identified. A cost analysis of long term dredging should be included.

General Comments

The East San Rafael Development plan has numerous elements which will affect water quality. Marsh lands are suggested to be filled in some areas and re-established in others. The existing lagoons will remain and marinas will be added. Extensive dredging is proposed and mud flats will be filled with the spoils.

1. Presentation of each of these elements in the report was rather disjointed. A clearer description of each element with detailed site plans would be useful.
2. Environmental and economic impacts are either not addressed or spoken of in general terms. Mitigative measures should be addressed in specific terms and long term maintenance costs should be estimated.

Specific Comments

1. Ponding areas

On page VI-C-1, three alternatives to maintain the quality of water in the ponding areas are mentioned.

As indicated in the report it may be possible to exchange Bay water with

great salt and flats. This problem should be solved by some measure, particularly for Seastrand North, should be possible.

If you have any questions concerning these comments please call me at this office.

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• **Exposition**

It should be noted that a shellfish bed exists in the San Rafael Channel. The analysts or proposed dredging there should take this into account.

Increased erosion due to construction could adversely impact on the marsh.

5/10/2004
Enclosure: Notice of Intent
cc: George Marsh
SAFCB
Division of Planning & R
Environmental Analysis S

Thompson, C. J. 1882

WILLIAMS, PLATZKE & MOCINE / CITY & REGIONAL PLANNING
 221 CALIFORNIA STREET SAUSALITO CALIFORNIA 94065 TELEPHONE 415 332-2892
 *DNEYH WILLIAMS, A.P. RUDOLPH R. PLATZKE, D.L.P. CORNINE MOCINE, A.P.

13 June 1977

Griffith L. Johnston
 Chief of Planning
 San Francisco Bay Regional Water Quality Control Board
 1111 Jackson Street
 Oakland, CA 95814

Dear Mr. Johnston:

Thank you for your comments on the East San Rafael Redevelopment Draft Plan Environmental Impact Report. We will respond to your comments in the order in which they appear. Your comments will also be included in the Final EIR.

Recommendations

1. This has been dropped in the Final EIR.
2. The other two private marinas have been dropped from the Plan and the marshes in which they would have been located will be preserved and restored to full tidal influence. The public Marina adjacent to the Spinnaker Point Site will be located on the site of an existing lagoon (see Marina EIR for details). These changes in the East San Rafael Redevelopment Plan can be seen in the revised Plan Map, Fig. 3 in the Final EIR. The recommendation on pumpout and waste engine oil facilities will be included in the Final EIR (p. VI-G-9).
3. The City of San Rafael Public Works Department plans for maintenance dredging of the canal channels is contingent upon the U.S. Army Corps of Engineers dredging program since the Corps is under contract to perform this function for the City. The Feasibility Study for the Marina Plan states that \$7000 per year is to be reserved for dredging expenditures.

General Comments

- 1, 2. The East San Rafael Redevelopment Plan has been revised. These revisions include deletion of the private marinas, the elimination of the Seastrand South housing, and the expansion of open space and wildlife areas. In addition the City of San

ASSOCIATES: MARGARET W. RUSCHE, A.P. XANDRA MALANDRA STEVEN DONALDSON
 BETTY L. BASYE DR. HOWARD S. LAPIN
 Environmental Planning • Urban Design • Human Services, Planning • Economic Development Studies

Mr. Griffith L. Johnston
 Page 2

has prepared an Open Space and Wildlife Mitigation Plan which indicates the mitigating measures for the destruction of wetlands. These measures include the restoration of the two remaining marsh areas (as mentioned above) in San Rafael Canal, spinning them up to tidal influence; preserving the lagoon in the Spinnaker Point site and improving it as a habitat for wildlife; planting pickleweed along portions of the Marina to enhance habitats for waterfowl; and restoring and improving ponding areas south of the Marina. These changes will be noted in the Final EIR and a detailed summary of mitigation measures will be included beginning on page I-12. However, the development of detailed maintenance costs is not within the purview of the EIR.

Specific Comments

1. Ponding areas. The San Rafael Public Works Department at present maintains the three lagoons in East San Rafael by exchanging waters with the Bay by tidal (gravity) flow through outfall lines at high tide) pumping or mechanical pumping when necessary. Urban pollutant loadings may necessitate pumping on a year-round basis but the cost of doing so is expected to be minor. This mitigation was proposed to control algal growth without the use of chemicals. However, for periodic maintenance, the addition of a chemical agent such as copper sulfate may occasionally be needed. The development of detailed maintenance costs is not necessarily as part of the EIR document.
2. Marshlands. This has been done as mentioned above.
3. Marinas. These comments have been noted as mentioned above.
4. Dredging. The use of dredging materials in the development of a shoreline park has been dropped from the plan and no fill will be located outside of the diked areas. It has been noted that shell fish (benthic animals) may be endangered with dredging operations (p. VI-E-7).
5. Erosion. Mitigation measures have been indicated in the Final EIR (beginning p. I-12). Unfortunately no detailed site plans for housing on Seastrand are available, therefore an analysis of erosion into the marsh below is not possible in great detail at this time.

Sincerely,

Steven Donaldson
 Steven Donaldson

cc: Herb Hotchner, Planning Director, San Rafael
 J. Stanley Ott, Assistant Director, San Rafael Redevelopment Agency
 William G. Kirkham, Division Chief., State Clearinghouse, DPR

September 21, 1976

4-URR-17, 101

Comment of Caltrans, District 4, Concerning East San Rafael Development Plan, State Clearinghouse No. 7606080.

In reviewing the Draft Environmental Impact Report (DEIR) for the East San Rafael Development Plan, some errors and omissions were noted, as follows:

Page VI-I-2, Line 15 - "fully directional diamond interchange" should be changed to "diamond type interchange".

Page VI-I-5, Line 14 - "U.S. Route 101" should be changed to "U.S. Route 101 and State Route 17".

Page VI-I-13, Line 27 - "have entered into" should be changed to "intend to enter into".

Page VI-I-13, Line 31 - "August 1976" should be changed to "The Spring of 1977".

Page VI-I-14, Lines 10 and 11 - "There will also be some improvements to the Francisco Boulevard approaches to the intersection" should be deleted.

It was noted that, although the DEIR describes and discusses existing drainage conditions, impact of the proposed redevelopment plan on drainage conditions is neither described, discussed nor evaluated. If there is no impact, the DEIR should so state. On the other hand, if changes in drainage conditions are anticipated, the changes should be described and impact evaluated. Caltrans will be particularly interested in learning whether or not there will be adverse impacts on Routes 17 and 101 drainage conditions.

Caltrans, District 4, requests an opportunity to review a master drainage plan for the redevelopment area if such plan exists or will exist in the future. Also, it is requested that Caltrans, District 4, be given an opportunity to review and comment on grading and drainage plans for any development or redevelopment project in the area that involves alteration of existing drainage conditions, before such alteration is approved by the City.

B. C. Bachold
B. C. BACHOLD
Deputy District Director
Caltrans, District 4

WILLIAMS, PLATZKE & MOCINE / CITY & REGIONAL PLANNING
221 CALIFORNIA STREET SAULALITO CALIFORNIA 94965 TELEPHONE 415 332-2892
STONEY H. WILLIAMS, A.I.P. RUDOLPH R. PLATZKE, A.I.P. CORNINE MOCINE, A.I.P.

3 June 1977

Mr. B. C. Bachold
Deputy District Director
CALTRANS, District 4
150 Oak Street
P.O. Box 3366
Rincon Annex
San Francisco, CA 94119

Dear Mr. Bachold:

Thank you for reviewing and commenting on the East San Rafael Draft Environmental Impact Report. We have made each of the individual changes you have suggested.

Regarding drainage and grading, however, no specific plans exist for the industrial area. Grading and drainage plans for Spinnaker Point and the Marina have been studied and analyzed in the respective EIR's. Page III-2 of the Final EIR points out that property owners will be required to fill their lands to a uniform elevation and to reconstruct the levy along the bayfront to City-approved engineered standards.

In addition, it has been indicated by the City that there will be no serious changes in drainage conditions in this area other than reducing the occurrence of flooding in the East San Rafael area with no negative impacts upon either Route 17 or 101 drainage conditions.

Sincerely,

Steven Donaldson
Steven Donaldson

SD:rr
cc: Herb Hotchner, Planning Director, San Rafael
William G. Kirkham, Division Chief, State Clearinghouse, OPR
J. Stanley Ott, Assistant Director, San Rafael Redevelopment Agency

Associates: MARCARET W. RUSCHE, A.I.P. XANDRA MALANDRA STEVEN DONALDSON
BETTY L. BASTY DR. HOWARD S. LAPIN
Environmental Planning • Urban Design • Human Services Planning • Economic Development Studies

am o r a n d u m

Date: September 28, 1976

1. L. Frank Goodson
Projects Coordinator
Resources Agency

2. City of San Rafael Redevelopment Agency
P. O. Box 60
San Rafael, CA 94902

From: Department of Fish and Game

Subject: Draft EIR, East San Rafael Redevelopment Plan, SGR 76090689

The Department of Fish and Game finds the report to be adequate in its discussions of the wildlife resources found within the project site; however, it does not discuss appropriate mitigation for development in this area.

We believe every effort must be made to preserve existing San Francisco Bay marshland and to restore historic tidelands. The project area represents land that was once historic tideland and as such was an important unit of the San Francisco Bay ecosystem. Although the habitat has been severely altered, a large portion is restorable to tidal action, creating valuable tidal marsh habitat. Additional development in this area will diminish both the existing and potential wildlife values in San Rafael Bay. The final EIR should present mitigation measures to protect or compensate for these lost wildlife values.

We would be pleased to discuss mitigation details with you at your earliest convenience. For further information, contact J. C. Fraser, Regional Manager, Region 3, P. O. Box 47, Yountville, California 94599, telephone (707) 944-2443.

J. C. Fraser
Regional Manager

WILLIAMS, PLATZKE & MOCINE / CITY & REGIONAL PLANNING
221 CALIFORNIA STREET SAUSALITO CALIFORNIA 94965 TELEPHONE 415 332-2892
SYDNEY H. WILLIAMS, A.I.P. RUDOLPH B. PLATZKE, A.I.P. CORWIN B. MOCINE, A.I.P.

6 June 1977

Mr. E.C. Fullerton, Director
California Department of Fish and Game
1416 Ninth Street
Sacramento, CA 95812

Dear Mr. Fullerton:

Thank you for your departmental review of the East San Rafael Draft Environmental Impact Report. In response to your agency's concerns and those of several other agencies, the City of San Rafael has worked out a Wildlife and Open Space Mitigation Plan designed to compensate for wetlands and associated habitats' destruction. These have been incorporated in the updated plan on pages 6 to 8 under the title "Implementation--Open Space/Wildlife Preservation." They are described in the summary beginning on page 1-12 of the Final EIR.

These wetland mitigations include the restoration of Seastrand North marsh and the marsh adjacent to Pickleweed Park; improvements to the lagoon within the Spinnaker Point Site; landscaping portions of the Marina with pickleweed to enhance waterfowl habitats; and to preserve and improve portions of the lagoon and pond areas south of the Spinnaker Point/Marina projects.

We believe that the City of San Rafael has made a serious effort to compensate for the loss of habitats which will be destroyed with the construction of the proposed project.

In addition, several proposals in marshland areas have also been eliminated so that there is less destruction of wetlands or restorable wetlands than would have occurred originally.

Sincerely,

Steven Donaldson
Steven Donaldson

SD:rr
cc: Herb Hotchner, Planning Director, City of San Rafael
William G. Kirkham, Division Chief, State Clearinghouse, OPR
J. Stanley Ott, Assistant Director, San Rafael Redevelopment Agency

Associates: MARGARET W. RUSCHE, A.I.P. SANDRA MALANDRA STEVEN DONALDSON
BETTY L. BASSE DR. HOWARD S. LAPIN
Environmental Planning • Urban Design • Human Services Planning • Economic Development Studies

em o r a n d u m

o : 1. Frank Goldston
Project Coordinator
Resources Agency

2. J. Stanley Ott
Redevelopment Agency, City of San Rafael
P. O. Box 60
San Rafael, CA 94902
Energy Resources Conservation
and Development Commission
1111 Howe Avenue
Sacramento, 95825

From

Subject: COMMENTS ON PROPOSED EAST SAN RAFAEL REDEVELOPMENT PLAN DRAFT EIR, SCH #76050589

Date: September 21, 1976

Introduction

The East San Rafael Redevelopment Plan delineates general land uses and development/conservation strategies for this portion of the entire San Rafael Redevelopment area.

Recommendation

Include a discussion on the implementation of energy conservation measures.

General Comments

The draft EIR presents an excellent discussion on energy conservation and the author(s) should be complimented. However, the draft EIR failed to relate these measures to implementation of the redevelopment plan. The lead agency should discuss which of the conservation measures are going to be implemented and how they are to become an integral part of the redevelopment plan.

sf

SEYMOUR E. GOLDSTONE, Chief
Energy Assessment Division
(916) 322-3107

MAS:nwb

WILLIAMS, PLATZER & MOCINE / CITY & REGIONAL PLANNING
221 CALIFORNIA STREET SAUSALITO CALIFORNIA 94965 TELEPHONE 415 332-3892
SYDNEY H. WILLIAMS, A.P.P. RUDOLPHER PLATZER, A.P.P. CORWIN MOCINE, A.P.P.

10 June 1977

Mr. Seymour E. Goldstone, Chief
Energy Assessment Division
Energy Resources Conservation and Development
Commission
1111 Howe Avenue
Sacramento, CA 95825

Dear Mr. Goldstone:

Thank you for reviewing the East San Rafael Draft Environmental Impact Report. Implementation of the energy conservation measures proposed in the DEIR will be incorporated into the plan implementation process at various stages since some measures have to do with building construction, others with utilities systems, and still others with home furnishings.

We have written a memo to the design consultant asking him to include those measures which are within his purview. We have asked the City to include measures for the industrial area in a set of design and performance standards for new development. Thus, we hope that the decision-makers will effect the implementation of some or all of these measures.

Sincerely,

Steven Donaldson

Steven Donaldson

SD:rr
enc: 1. Letter to Dan Coleman, Design Consultant
2. Letter to Matt Guthrie, San Rafael Planning Department

cc: Herb Hotchner, Planning Director, City of San Rafael
William G. Kirkham, Division Chief, State Clearinghouse, DPR
J. Stanley Ott, Assistant Director, San Rafael Redevelopment Agency

ASSOCIATES: MARGARET W. BUSCH, A.P.P. XANDRA MALANDRA STEVEN DONALDSON
BETTY L. BASSE DR. HOWARD S. LAPIN
Environmental Planning • Urban Design • Human Services Planning • Economic Development Studies

WILLIAMS, PLATZKE & MOCINE / CITY & REGIONAL PLANNING
221 CALIFORNIA STREET SAUSALITO CALIFORNIA 94065 TELEPHONE 415 332-2892
STONEY H. WILLIAMS, A.P. RUDOLPH R. PLATZKE, A.P. CORWIN R. MOCINE, A.P.

21 January 1977

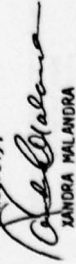
Mr. Matt Guthrie
San Rafael Planning Department
San Rafael City Hall
San Rafael, CA 94901

Dear Mr. Guthrie:

The California State Energy Resources Conservation and Development Commission has requested that a discussion of the recommended energy conservation measures (pp VI-0-5 to VI-0-16 of the East San Rafael Draft EIR) which are going to be implemented be included in the Final EIR on the East San Rafael Redevelopment Plan. Therefore, we would like to suggest that the City develop or indicate that it will develop a set of design and performance standards which will be required for all development in the industrial and commercial areas. The conservation measures proposed which relate to building design and materials may be enforced in part or in their entirety by this method. Other energy conservation measures relate to City services. These should also be reviewed in order to determine whether it will be possible to include some or all of them in the Plan. Measures relating to home furnishings, while not under the control of the City, may be listed and conveyed to new residents in the area in the hope that they might benefit from the knowledge of measures which they can effect by themselves.

Please let us know which energy conservation measures you plan to include in the Plan and their means of implementation.

Sincerely,


XANDRA MALANDRA

XM:dd

Copy to: Mr. Coleman
San Rafael Redevelopment Agency

ASSOCIATES: MARGARET W. RUSCHE, A.P. XANDRA MALANDRA STEVEN DONALDSON
BETTY L. BASYE OR HOWARD S. LAPIN
Environmental Planning • Urban Design • Human Services Planning • Economic Development Studies

WILLIAMS, PLATZKE & MOCINE / CITY & REGIONAL PLANNING
221 CALIFORNIA STREET SAUSALITO CALIFORNIA 94065 TELEPHONE 415 332-2892
STONEY H. WILLIAMS, A.P. RUDOLPH R. PLATZKE, A.P. CORWIN R. MOCINE, A.P.

21 January 1977

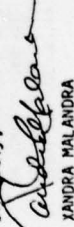
Mr. Dan Coleman
201 Sir Francis Drake Blvd.
Greenbrae, CA 94904

Dear Mr. Coleman:

We would like to take this opportunity to point out that the East San Rafael Redevelopment Plan EIR contains some excellent recommendations for energy conservation which might be included in the Plan (see pp VI-0-5 to VI-0-16 of the East San Rafael Draft EIR). Some of these measures relate to City services and others to home furnishings. However, some of the recommendations have to do with building materials and design. These are the conservation measures we hope will be included in part or in their entirety in the development of residences and industrial structures in the East San Rafael Redevelopment area.

The California State Energy Resources Conservation and Development Commission has requested that a discussion of conservation measures which are going to be implemented be included in the Final EIR. Please let us know which of the conservation measures your staff feels will be feasible and desirable to include in the Plan.

Sincerely,


XANDRA MALANDRA

XM:dd

Copy to: San Rafael Planning Dept.
San Rafael Redevelopment Agency

ASSOCIATES: MARGARET W. RUSCHE, A.P. XANDRA MALANDRA STEVEN DONALDSON
BETTY L. BASYE OR HOWARD S. LAPIN
Environmental Planning • Urban Design • Human Services Planning • Economic Development Studies

Mr. Matthew Guthrie

-2-

September 15, 1976

RECEIVED

SEP 16 1976

PLANNING

September 15, 1976

File Ref.: GLAP G06-03

Mr. Matthew Guthrie
City of San Rafael
Planning Department
P. O. Box 60
San Rafael, CA 94902

Dear Mr. Guthrie:

Comments to the East San Rafael
Redevelopment Plan, EIR

This Division has reviewed the subject document and offers the following comments:

1. The use of tide and submerged lands for permanent residential purposes violates the public trust because the nature of such uses benefits a certain few to the exclusion of the general statewide public. It is not altogether clear from this and related reports how much permanent residential development will be placed on tidelands or will dominate access to wetlands and deter use by the general statewide public.

On page II-2 of the subject report, it indicates that it may not always be consistent with the EIRs for Spinnaker Point and the Marina. In view of this vagueness, it is suggested that the location of the permanent residential units be clearly delineated.

The Spinnaker Point Development Plan (SCH #76071284), page III-3, states that a street is proposed to cross the lagoon to divide it into two portions: a 6.5-acre lake to the north and a harbor to the south. Along both sides of the road, 70 homes of a semi-attached nature will be built, half facing the lake and half facing the harbor. On page V-4, the major discussion concerns whether housing should be provided for moderate-income persons as opposed to high-income persons. This is not to imply that all housing is to be located on

wetlands, but the issue of location on wetlands is never addressed.

Marinas may include permanent residential units as part of the development. Will the San Rafael Marina include permanent housing? If so, what is the location? The marina project appears to be entirely on BILC lots which were sold and partially filled. However, the unfilled lagoon areas are subject to the public trust and should not be used for residential purposes.

2. A review of the existing statutes concerning the grants to the City of San Rafael does not include recreational and marina uses in the original trust purposes of harbor improvement. Such uses may require an amendment to the granting statute.

Should you have any questions, please refer them to Rosanna Horton, Granted Lands Representative, at (916) 322-3317.

Sincerely,

Ted T. Fukushima

TED T. FUKUSHIMA
Senior Planner

WILLIAMS, PLATZKE & MOCINE / CITY & REGIONAL PLANNING

221 CALIFORNIA STREET SAUSALITO CALIFORNIA 94065 TELEPHONE 415 332-2852
STONEYM WILLIAMS, A.P. RUDOLPH PLATZKE, A.P. CORNINE MOCINE, A.P.

6 June 1977

Mr. Ted Fukushima
State Lands Commission
1807 13th Street
Sacramento, CA 95814

Dear Mr. Fukushima:

Thank you for your comments regarding the East San Rafael Redevelopment Impact Report. We are responding to your comments in the order they were presented and will attach your letter to the Final EIR.

The use of any tide or submerged lands for permanent residential purposes has been deleted from the Plan. The Seastrand South site no longer has housing planned for construction, this site has been purchased by the City of San Rafael for open space. The Seastrand North housing is located above any tidally-influenced lands and the proposed marina is located has also been deleted from the Plan. The Spinnaker Point development, as pointed out in the DEIR is located on a site which has been severely altered and filled to the point that it is no longer under any tidal influence.

In addition, the updated Plan text and maps (1,2,3) and the revised Land Use Map (Fig. 3) in the Final EIR shows the precise location of residential development on the Spinnaker Point Site relative to open space for public access. You will note that open space will be provided along the entire bayshore on the Spinnaker Point Site with interconnecting pedestrian paths from inland areas.

Again the revised Plan Map, Fig. 3 indicates the precise location of residential development relative to public open space.

The street proposed to cross the lagoon, separating the lagoon from the Marina with housing on either side of the street has been deleted from the Plan. The area between the lagoon and the Marina has been designated as retail commercial in the revised Plan.

There will be no housing located on the Marina, this area will be a combination of retail commercial and open space with continuous public access around the Marina.

Associates: MARGARET W. RUSCHE, A.P. XANDRA MALANDRA STEVEN DONALDSON
BETTY L. BAYE DR. HOWARD S. LAPIN
Environmental Planning • Urban Design • Human Services Planning • Economic Development Studies

T. Fukushima
Page 2

The lagoon will be preserved for wildlife and have retail commercial facilities with public access affronting it to the south and residential lots bordering it to the north.

Sincerely,

Steven Donaldson

Steven Donaldson

SD:ch

cc: Herb Hotchner, Planning Director, City of San Rafael
J. Stanley Ott, Assistant Director,
San Rafael Redevelopment Agency
William G. Kirkham, Division Chief, State Clearinghouse,
OPR



United States Department of the Interior **RECEIVED**

FISH AND WILDLIFE SERVICE
Division of Ecological Services
2800 Cottage Way, Room E-2727
Sacramento, California 95825

SEP 15 1976

PLANNING

September 13, 1976

City of San Rafael
Planning Department
P.O. Box 60
San Rafael, California 94902

Dear Sirs:

We have received and reviewed the Redevelopment Plan and Draft Environmental Impact Report for East San Rafael. Our comments are provided as an informal planning aid from the Sacramento Area Office, Division of Ecological Services, U.S. Fish and Wildlife Service. These comments do not represent or replace any further formal review by either this Service or the Department of the Interior on subsequent permit activities or environmental statements.

This Service and other conservation agencies have been concerned for some time over the future of the present and historic tidelands adjacent to and in the vicinity of East San Rafael. It is our belief that much of this land possesses high wildlife value in its present state and has the potential for increased value if returned to its original state as tidelands and saltmarsh.

We are pleased to see that a plan has been developed for East San Rafael. We are in general agreement with the land use designation. However, we must emphasize our specific interests in the use of the lowland-wetland area south of the proposed marina. We believe this site has important wildlife values and are concerned over modifications detrimental to these values. To preserve and enhance the environmental values of the planning area, it may be prudent to designate the area to Open Space - Conservation from its present Conservation/Recreation (with supportive commercial/industrial).

The five-acre spoil disposal site bayward of the dike requires specific comments and corrective action. At meetings with the planning department of San Rafael, we made it abundantly clear that there were serious concerns over any bay fill. It was expressed by this Service and other agencies that this plan component should not be pursued. Since it is

still in the plan, we recommend that other more acceptable means of dredge spoil disposal be pursued.

Specific comments on the DEIR are as follows:

Page I-2 (line 13-14). This sentence gives the impression that common animals cannot be severely impacted. We believe any negative modification of wetlands around the bay to have severe impacts.

Page I-2 (lines 23-24). The use of dredge spoils for marsh reconstruction is acceptable only in former tidelands that are now removed from tidal action. Placement of spoil in any shallow tidal areas of the bay is not recommended.

Page I-7 (lines 11-18). As stated above, we believe any negative modification of wetlands to be severe and suggest the values and area of impacts be reviewed.

Page II-2 (lines 22-26). The concept of using shallow areas of the bay for dredge spoil deposition is unacceptable to most conservation agencies and should be dropped from the plan.

Page III (lines 34-36). A more detailed description of the plans for the lowlands south of the proposed marina should be made available so that impacts could be assessed.

Page VI-A-2 (lines 11-13). Modification of these lowlands in a manner detrimental to wildlife could cause significant impacts.

Page VI-C-9 (lines 29-34). The construction of a marina would probably have a net negative effect on the ecological attributes of the bay. While 30 acres would be added to the tidal prism of the bay, the effect of boats, water pollution and wildlife disturbance, plus associated effects of dredging would overshadow the beneficial aspects.

Page VI-E-1 (line 11). The narrative about mudflats should include discussion about shorebird use which, in most cases, is very significant.

Page VI-E-3 (lines 33-34). This sentence is misleading and at odds with the rest of the paragraph which states that large amounts of birds use the area.

Page VI-E-6 (lines 30-34). The wetlands behind the dikes are also worthy of protection as they provide valuable habitat, as has been mentioned above.


Page VI-E-10 (Mitigation measures). Since we believe the wetlands south of the proposed marina and behind the dikes have moderate to high wildlife values, any modifications of land use detrimental to these values must also be mitigated.



While these are informal comments, we take this opportunity to stress that during our review of any required Army Corps of Engineer permit, we will recommend that a wildlife mitigation plan acceptable to this agency be incorporated as a project component and that any lands included in this plan be spared from development and dedicated solely to fish and wildlife uses.

Thank you for the opportunity to review the plan. If we can be of any further help, please feel free to contact this office. We are returning an extra copy of the DEIR and plan, as requested.

Sincerely,


Felix E. Smith
Field Supervisor

Enclosures: Draft EIR
East San Rafael Plan

cc: ARD-Env. (ES), USFWS, Portland
Reg. Mgr., CDF&G, Reg. III, Yountville

APPENDIX C

BIRD INVENTORY

BIRDS OF MARIN COUNTY — FIELD CHECK LIST

Locality **SAN RAFAEL BAYFRONT**

Time **12:50** Wind **W** Weather **Cloudy**

Date **1968-1977** Total Species **125** Individuals **125**

Composited: **BURNS, HARROW, LOWMAN, PEARCE, STRANDBERG, JENNEN, DAVIES, REALL, ELLIOTT,**

✓ LOON , Common	CW	✓ SWAN , Trumpeter	VW
✓ Yellow-billed	VW	✓ GOOSE , Canada	RW
✓ Arctic	CW	✓ BRANT , Black	CW
✓ Red-throated	CW	✓ GOOSE , Emperor	VW
✓ GREBE , Red-necked	UW	✓ White-fronted	UW
✓ Horned	CW	✓ Snow	RW
✓ Eared	CW	✓ Ross'	VW
✓ Western	CW	✓ Mallard	UP-CW
✓ Pied-billed	UP-CW	✓ Gadwall	UW
✓ ALBATROSS , Black-footed	RP	✓ Pintail	AW
✓ Pulmar	UW	✓ TEAL , Common	VW
✓ SHEARWATER	UW	✓ Green-winged	UW
✓ Pink-footed	US	✓ Blue-winged	V
✓ Pale-footed	VM	✓ Cinnamon	RS-CM
✓ New Zealand	VM	✓ WIDGEON , European	VW
✓ Sooty	AS-UW	✓ American	CW
✓ Slender-billed	VM	✓ Shoveler	UW
✓ Moss	VM	✓ DUCK , Wood	RW
✓ PETREL , Fork-tailed	VM	✓ Redhead	RW
✓ Leach's	VS	✓ DUCK , Ring-necked	UW
✓ Ashy	RS	✓ Canvasback	CW
✓ Black	V	✓ SCAUP , Greater	CW
✓ Wilson's	V	✓ Lesser	AW
✓ PELICAN , White	UW	✓ GOLDENEYE , Common	CW
✓ Brown	CW	✓ Barrow's	RW
✓ CORMORANT	UW	✓ Buffhead	AW
✓ Double-crested	CP	✓ Oldsquaw	RW
✓ Breast's	CP	✓ DUCK , Harlequin	RW
✓ Pelagic	CP	✓ EIDER , King	VW
✓ FRIGATE-BIRD	UW	✓ SCOTER , White-winged	CW
✓ Magnificent	V	✓ Surf	RP-AW
✓ HERON , Great Blue	CP	✓ Common	UW
✓ Green	RP	✓ DUCK , Ruddy	RP-AW
✓ Little Blue	VS	✓ MERGANSER , Hooded	RV
✓ SECRET , Cattle	V	✓ Common	VW
✓ Common	CP	✓ Red-breasted	CW
✓ Snowy	CP	✓ VULTURE , Turkey	UP-CS
✓ HERON	UW	✓ KITE , White-tailed	RP
✓ Black-crowned Night	CP	✓ Goshawk	V
✓ Yellow-crowned Night	VS	✓ HAWK , Sharp-shinned	CP
✓ BITTERN , Least	V	✓ Cooper's	UP
✓ American	RP	✓ Red-tailed	CP
✓ IBIS , White	V	✓ Red-shouldered	UP
✓ SWAN , Whistling	RW	✓ Broad-winged	V

✓ OWL , Short-eared	RW	✓ CHICKADEE	CP
✓ Saw-whet	UP	✓ Chestnut-backed	CP
✓ Poor-will	US	✓ TITMOUSE , Plain	CP
✓ SWIFT , Black	RS	✓ BUSHTIT , Common	CP
✓ Vaux's	RM	✓ NUTHATCH	UW
✓ White-throated	UP	✓ White-breasted	UW-RP
✓ HUMMINGBIRD	UW	✓ Pigeon	UP
✓ Black-chained	V	✓ CRICKET , Brown	CP
✓ Anna's	CP	✓ Wrenit	AP
✓ Rufous	CM	✓ Dipper	VW
✓ Allen's	AS	✓ WREN , House	RS-VW
✓ Calliope	CP	✓ Winter	UP
✓ KINGFISHER , Belted	V	✓ Bewick's	CP
✓ FLICKER , Yellow-shafted	RW	✓ Long-billed Marsh	CP
✓ Red-shafted	CP	✓ Rock	RP
✓ WOODPECKER , Pileated	RP	✓ Mockingbird	UP
✓ Acorn	CP	✓ THRASHER , Brown	V
✓ Lewis'	RW	✓ California	CP-AW
✓ BAPSUCKER	UW	✓ Robin	CP-AW
✓ Yellow-bellied	UP	✓ THRUSH , Varied	CW
✓ WOODPECKER , Hairy	UW	✓ Hermist	RP-CW
✓ Downy	CP	✓ Swainson's	CP
✓ Nuttall's	RP	✓ BLUEBIRD , Western	CP
✓ White-headed	V	✓ Mountain	RW
✓ KINGBIRD , Eastern	V	✓ SOLITAIRE , Townsend's	VW
✓ Tropical	V	✓ GNATCATCHER	UW
✓ Western	RS	✓ Blue-gray	UW
✓ FLYCATCHER	UW	✓ KINGLET	CP
✓ Scissor-tailed	V	✓ Golden-crowned	RP-UW
✓ Ash-throated	US	✓ Ruby-crowned	CM-AW
✓ PHOEBE , Eastern	V	✓ PIPET , Water	CW
✓ Black	CP	✓ WAXWING , Bohemian	VW
✓ Say's	RM	✓ Cedar	CW
✓ FLYCATCHER , Trewill's	UW	✓ SHRIKE , Northern	VW
✓ Least	VM	✓ Loggerhead	CP
✓ Meadow's	VM	✓ Starling	CP
✓ Dusky	VM	✓ WRECK , Hutton's	CP
✓ Western	CM	✓ Solitary	RS
✓ PEWEE , Western Wood	UW	✓ Red-eyed	V
✓ FLYCATCHER	US	✓ Philadelphia	V
✓ Olive-sided	US	✓ Warbling	CS
✓ LARK , Horned	CP	✓ WARBLER	UW
✓ SWALLOW , Violet-green	CP	✓ Black-and-white	RM
✓ Tree	UP	✓ Tennessee	VM
✓ Bank	RM	✓ Orange-crowned	CS
✓ Rough-winged	UW	✓ Nashville	VM
✓ Barn	CS	✓ Lucy's	V
✓ CHIR	US	✓ Parula	VM
✓ MARTIN , Purple	CP	✓ Yellow	US CM
✓ JAY , Gray	V	✓ Magnolia	VM
✓ Steller's	CP	✓ Cape May	VM
✓ Scrub	CP	✓ Black-throated Blue	VM
✓ MAGPIE , Yellow-bellied	V	✓ Myrtle	UW
✓ RAVEN , Common	UP	✓ Audubon	CW
✓ CROW , Common	CP	✓ Black-throated Gray	RS-UM
✓ MUTCRACKER , Clark's	VW		

✓ OWEN , Short-eared	RW	✓ CHICKADEE	CP
✓ Saw-whet	UP	✓ Chestnut-backed	CP
✓ Poor-will	US	✓ TITMOUSE , Plain	CP
✓ SWIFT , Black	RS	✓ BUSHTIT , Common	CP
✓ Vaux's	RM	✓ NUTHATCH	UW
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✓ Downy	CP	✓ Swainson's	CP
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✓ KINGBIRD , Eastern	V	✓ SOLITAIRE , Townsend's	VW
✓ Tropical	V	✓ GNATCATCHER	UW
✓ Western	RS	✓ Blue-gray	UW
✓ FLYCATCHER	UW	✓ KINGLET	CP
✓ Scissor-tailed	V	✓ Golden-crowned	RP-UW
✓ Ash-throated	US	✓ Ruby-crowned	CM-AW
✓ PHOEBE , Eastern	V	✓ PIPET , Water	CW
✓ Black	CP	✓ WAXWING , Bohemian	VW
✓ Say's	RM	✓ Cedar	CW
✓ FLYCATCHER , Trewill's	UW	✓ SHRIKE , Northern	VW
✓ Least	VM	✓ Loggerhead	CP
✓ Meadow's	VM	✓ Starling	CP
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✓ PEWEE , Western Wood	UW	✓ Red-eyed	V
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✓ MARTIN , Purple	CP	✓ Yellow	US CM
✓ JAY , Gray	V	✓ Magnolia	VM
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✓ Scrub	CP	✓ Black-throated Blue	VM
✓ MAGPIE , Yellow-bellied	V	✓ Myrtle	UW
✓ RAVEN , Common	UP	✓ Audubon	CW
✓ CROW , Common	CP	✓ Black-throated Gray	RS-UM
✓ MUTCRACKER , Clark's	VW		

✓ HAWK , Swainson's	V	✓ GODWIT , Marbled	CM-CW
✓ Rough-legged	RW	✓ Sanderling	CM-CW
✓ Ferruginous	UW	✓ AVOYET , American	CM-CW
✓ EAGLE , Golden	RP	✓ STILT , Black-necked	RM
✓ Bald	RM	✓ PHALAROPE , Red	UM
✓ HAWK , Marsh	RP-UW	✓ Wilson's	VM
✓ Osprey	RP	✓ Northern	CM
✓ FALCON , Prairie	VW	✓ JAEGER , Pomarine	RM
✓ Peregrine	R	✓ Peregrine	VM
✓ HAWK , Pigeon	RP-UM	✓ Long-tailed	VM
✓ Sparrow , REDWING	CP	✓ Skua	VM
✓ QUAIL , California	AP	✓ GULL , Glaucous	VW
✓ PHEASANT , Ring-necked	RP	✓ Glaucous-winged	CW
✓ CRANE , Sandhill	VW	✓ Western	CP
✓ RAIL , Clapper	RP	✓ Herring	UM-UW
✓ Virginia	UP	✓ California	AW
✓ Sora	RP	✓ Ring-billed	UP-CM
✓ RAIL , Yellow	VW	✓ Mew	CM
✓ Black	RS	✓ Black-headed	V
✓ GALLINULE , Common	UP-RW	✓ Franklin's	V
✓ COOT , American	UP-AW	✓ Bonaparte's	CM-UW
✓ OYSTERCATCHER , Black	UP	✓ Heermann's	CM-UW
✓ POLOVER	UW	✓ KITTITWAKE	UW
✓ Semipalmated	RW-UM	✓ Black-legged	UW
✓ Snowy	RP-UW	✓ GULL , Sabine's	UM
✓ Killdeer	CP	✓ TERN , Forster's	CM
✓ POLOVER , Mountain	VW	✓ Common	RM
✓ American Golden	RM	✓ Arctic	V
✓ Black-bellied	CM-UW	✓ Least	V
✓ Surf-bird	UM-RW	✓ Royal	V
✓ TURNSTONE , Ruddy	UM	✓ Elegant	RM
✓ Black	CM-CW	✓ Caspian	UP
✓ BATTE , Common	UM-UW	✓ Black	V
✓ CURLEW , Long-billed	RP-UM	✓ MURRE , Common	CP
✓ Whimbrel	RP-UM	✓ GUILLENOT , Pigeon	UP
✓ SANDPIPER , Spotted	UM-UW	✓ MURRELET , Marbled	UP
✓ Solitary	V	✓ Xanthus	RW
✓ TATTLER	UW-UW	✓ Ancient	UM-RW
✓ Wandering	UM-UW	✓ AUKLET , Cassin's	UP
✓ Willet	CP	✓ Parakeet	V
✓ YELLOWLEGS	UW-RW	✓ Rhinoceros	UW
✓ Greater	UM-RW	✓ PUFFIN , Horned	V
✓ Lesser	RM	✓ Tufted	RP
✓ Knot	RM	✓ PIGEON , Band-tailed	CP
✓ SANDPIPER , Rock	VW	✓ DOVE , Rock	CP
✓ Sharp-tailed	V	✓ White-winged	V
✓ Pectoral	RM	✓ Mourning	AP
✓ Beard's	RM	✓ CUCKOO , Yellow-billed	V
✓ Least	CM-CW	✓ OWL , Barn	UP
✓ Dunlin	AM-AW	✓ Screw	UP
✓ DOWNY	CM-RW	✓ Great Horned	CP
✓ Long-billed	UM-RW	✓ Pygmy	RP
✓ SANDPIPER , Stilt	V	✓ Burrowing	RP
✓ Western	AM-AW	✓ Spotted	UP
		✓ Long-eared	UP

V SEMIPALMATED SANDPIPER

✓ WARBLER	UW-UM	✓ BUNTING , Lazuli	US
✓ Townsend's	UW-UM	✓ Dickcissel	V
✓ Black-throated Green	VM	✓ GROSBELK , Evening	V
✓ Hermit	RP-UM	✓ FINCH , Purple	CP
✓ Blackburnian	VM	✓ Cassin's	VW
✓ Chestnut-sided	VM	✓ House	AP
✓ Bay-breasted	VM	✓ SISKIN , Pine	CP
✓ Blackpoll	VM	✓ GOLDFINCH , American	CP
✓ Pine	V	✓ Lesser	CP
✓ Prairie	VM	✓ Lawrence's	RP
✓ Palm	RM	✓ CROSSBILL , Red	RP
✓ Ovenbird	VM	✓ TOWHEE , Green-tailed	V
✓ WATERTHRUSH	UW	✓ Rufous-sided	CP
✓ Northern	VM	✓ Brown	AP
✓ WARBLER , MacGillivray's	US	✓ BUNTING , Lark	VM
✓ Yellowthroat	CP	✓ SPARROW , Savannah	UP-CW
✓ CHAT , Yellow-breasted	VM	✓ Grasshopper	RS
✓ WARBLER , Wilson's	CS	✓ Baird's	VW
✓ REDSTART , American	RM	✓ Vesper	VM
✓ SPARROW , House	AP	✓ Lark	CP
✓ Bobolink	V	✓ Rufous-crowned	RP
✓ MEADOWLARK , Western	CP	✓ Sage	AP
✓ BLACKBIRD	V	✓ JUNCO , Slate-colored	RW
✓ Yellow-headed	V	✓ Oregon	UP-AW
✓ Redwinged	AP	✓ Gray-headed	VW
✓ Tricolored	UW	✓ SPARROW , Tree	V
✓ ORIOLE , Orchard	V	✓ Chipping	US
✓ Hooded	RS	✓ Brewer's	VM
✓ Baltimore	V	✓ Norris'	V
✓ Bullock's	US	✓ White-crowned	AW-CS
✓ BLACKBIRD , Rusty	V	✓ Golden-crowned	AW
✓ Brewer's	AP	✓ White-throated	RW
✓ COWBIRD , Brown-headed	UP	✓ Lincoln's	UW
✓ TANAGER , Western	CM	✓ Swamp	VW
✓ Summer	V	✓ Song	CP
✓ GROSBELK , Rose-breasted	V	✓ LONGSPUR , Lapland	V
✓ Black-headed	CS	✓ Chestnut-collared	V
✓ Blue	V		
✓ BUNTING , Indigo	V		

The first letter following the name of a species is an indication of its abundance: A—abundant; C—common; U—uncommon; R—rare; V—vagrant. Vagrant birds are by definition unpredictable. The V is often followed by a seasonal initial letter indicating probability.

The second letter indicates the time of year when a species may normally be expected: P—permanent resident—birds which may be seen at any time of year but not necessarily nesting; S—summer visitor

APPENDIX D

POLICY STATEMENT - CITY OF SAN RAFAEL

APPENDIX D

URBAN DESIGN AND DEVELOPMENT

POLICY STATEMENT

FOR

EAST SAN RAFAEL

Adopted by San Rafael Redevelopment Agency

June 27, 1977

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INTRODUCTION

The Urban Design and Development Policy Statement for East San Rafael is a more precise detailing of the Central San Rafael Redevelopment Plan adopted in 1972. It is prepared in conformance with and implementing the objectives of the San Rafael General Plan adopted in 1974. The purpose of this Policy Statement is to establish a basis for amending the Central San Rafael Redevelopment Plan so that it will provide more specific guidelines for the site by site, day by day development and preservation of East San Rafael in a manner compatible with the Goals and Objectives set forth in the General Plan. The Redevelopment Agency has determined that such an amendment to the Central San Rafael Redevelopment Plan for this portion of the Redevelopment area is a necessary priority because of the number of projects proposed for East San Rafael; the regional impacts of some of these projects; the different concerns expressed by various segments of the community regarding the value of East San Rafael as an environmental resource and as an area to be developed.

The preparation of this Policy Statement is a device which enables the Agency to have sufficient preciseness of detail and public commitment to serve as a basis for an Environmental Impact Report. In turn, not being in itself a formal amendment to the Redevelopment Plan, the Policy Statement has been flexible enough to be modified by the Agency through several drafts, to incorporate changes which the Agency feels will mitigate negative impacts as divulged through the EIR process.

The necessity for this Policy Statement is underlined by a review of current actions and activities now being requested and implemented in East San Rafael. Previous approvals have been granted for several permits to fill low level lands behind the shoreline dike. On these filled areas, a variety of local approvals have been granted permitting the development of industrial and commercial uses. However, a majority of the land in East San Rafael still exists in either an unfilled or vacant condition. Numerous permits to fill and develop these lands have been filed and approvals must be obtained from various regional, state and federal agencies, all of whom have expressed their desire to review individual permits within a framework of a more detailed overall plan for the East San Rafael portion of the Central San Rafael Redevelopment area. This plan is prepared to respond to these several requests and to provide the necessary guidance to the public, to property owners, to developers, and to all permit granting agencies.

II. POLICIES

These policies express the intent of actions to be undertaken in the East San Rafael area in accordance with this Plan.

- A. The Bay Shoreline and mouth of the San Rafael Canal are unique resources which should be preserved and made available to the public. Public access to and use of the shoreline in East San Rafael should be encouraged and provided for.
- B. The urban design of East San Rafael should provide an attractive "visual gateway" to persons entering San Rafael on Highways 17 and 101. Development in East San Rafael should be sensitively designed, integrating building forms and materials with sufficient landscaping and public improvements to provide the appearance of an attractive, cohesive and accessible area of the City.
- C. The Francisco Boulevard/Highway 17 corridor should be developed as a diversified employment and revenue producing center. This center should provide the opportunity for jobs to be created in construction and in a variety of industrial and water related commercial activities. Circulation and access to and from the freeway and Francisco Boulevard should be provided so that traffic serving the industrial development can be accommodated.
- D. Economic development should be balanced with the preservation of wildlife habitat and open space in East San Rafael and throughout the City of San Rafael's planning area.

III. IMPLEMENTATION

- A. Land Use (See Map No. 1)
The East San Rafael Area shall be developed in the following land use pattern, implementing the specifics and development standards as indicated in each of the following areas.

1. Seavstrand

A single family residential land use is designated for this property. The marsh area existing on the property shall be preserved. Development proposals for the area shall be reviewed to determine: a) the slope stability of the hillside; b) the visual backdrop and open space value provided by the hillside; c) the value and potential measures of preserving the wooded area on the eastern portion of the site; d) methods in which the existing marsh can be improved and protected; e) the use and possible extension of land within the power line maintenance easement; f) the construction erosion control measures to be implemented which minimize soil runoff and siltation of marsh areas and the Bay. In addition, noise reducing construction equipment shall be utilized and the design of residential units shall incorporate energy conservation measures.

2. Pickleweed Park and Adjacent Marshland

A recreational open space land use is designated for this property. The City of San Rafael has acquired the entire seventeen acre property for the purpose of providing a neighborhood park site. The existing play area and turf occupying three acres would remain. The park is to be improved to include an expansion of the existing play area, and open area to be planted with indigenous vegetation and an area adjacent to the canal mouth to be excavated and restored to marsh area subject to tidal action. The Tiscornia property (Assessor's Parcel 9-142-01), although not a part of Pickleweed Park, is contiguous to and provides a visual continuance of the Park. The site exists as a marshland area and the East San Rafael Redevelopment Plan applies an 'Open Space Conservation' land use to it.

3. Spinnaker Point

3-a Residential Development

A single family residential land use incorporating clustered town-house design is designated for this property. The planning and design of the development should be in keeping with the character of the Bay environment and compatible with the existing adjacent residential neighborhood. Developers should take into account the requirements of various local, regional, state and federal agencies concerned with the natural environment and shoreline development. Housing should be clustered as much as possible to retain common open space vistas. The housing should offer as much visual and pedestrian access to the Marina as possible; it should also be linked to the open space network of the existing Bahia Vista development. In addition, Bayshore and Canal perimeters should provide continuous public access to pedestrians and bicycle riders. An open space corridor of at least 50 feet along the power line right-of-way should also be provided to accommodate pedestrians and bikeways.

3-b Tideland Marsh

A 45 acre tideland marsh is to be permanently preserved.

D -3-

4. Marina

This property is to be developed with a 600 berth public marina in conjunction with related commercial facilities. The supportive commercial facilities should be a minimum of 40,000 square feet. A study of the environmental, physical, economic and technical feasibility of the marina has been prepared, submitted to and approved by the Department of Navigation and Ocean Development. The plan presented in this study includes the following aspects: a) continuous public access to the Bay and marina shoreline; b) a 200 foot wide public open space strip at the eastern edge of the marina area to serve as the northern terminus of the shoreline park.

(For more details of the Marina Plan refer to the Marina Feasibility Study.)

The commercial retail development proposed in the marina shall be very closely integrated with similar and related uses in the Holiday Magic area. Opportunities to create a small retail node serving the existing Bahia Vista neighborhood and Spinnaker Point should be pursued with interested developers. Parking for all facilities in the marina area should be designed so that there may be joint usage.

In addition, the design, financial, spacial and parking requirements for a small boat launch ramp shall be analyzed and alternative locations for the ramp shall be evaluated.

5. Shoreline Park

A park is to be established along the bay shoreline from the southern boundary of the City to the Marina. This linear open space is to be 100 feet wide with additional area to be provided for parking and park facilities at the northern and southern access points and at a point central to the park. An emergency and maintenance all weather roadway shall be along the top of the levee. A system of pedestrian and bicycle trails connecting the access points and small picnic areas are to be developed. The bike path running along the levee may either utilize the maintenance roadway or be separated where feasible.

The land owners may be expected to dedicate the open space for the park, including the expansion in the center of the park and a 100 foot wide strip at the southern access point, connecting to the frontage road.

6. Lands of Holiday Magic

The East San Rafael Redevelopment Plan designates a combination of commercial, commercial recreation, and industrial land uses for the area. This undeveloped area is presently diked but not filled. Due to the unfilled wetland character of the site, outside agencies may impose constraints which will affect the scope and location of such developments. To achieve an economically balanced plan, commercial and industrial development will be necessary to acquire and support any open space within the area. It is suggested that 25 acres be developed and 55 acres be restored to tidal action as a marsh. Noise reducing construction equipment shall be utilized and the design of structures shall incorporate energy conservation measures.

D -4-

An alternative land use to be explored in future studies is the use of a portion of the area as a supplemental storage area for treated sewage and storm water runoff with secondary wildlife usage.

7. Commercial and Industrial

The land adjacent to and on both sides of Highway 17 and East Francisco Boulevard shall be designated for commercial and industrial land uses. Sufficient growth of and demand for development along this corridor exists to accommodate this land use.

Approximately 28 acres of land located west of Highway 17 and north of East Sir Francis Drake Boulevard, including a portion of the Point San Quentin Ridge area shall be considered for interim use as residential or as a mobile home park. The land shall be returned to commercial and industrial use within 20 years from the inception of the interim use.

Prior to completion of the bay levee, any industrial development must take place on high level fill or dike completion must precede any construction on low level fill.

Properly engineered land fill in the area could exceed the height of the existing dike (10 feet), but should be done in such a way to provide views of the bay and to provide relief to the generally flat topography of the area.

Building heights should not exceed two stories or 25 feet.

In order to permanently upgrade the image of Highway 101, high standards of building design, utility installation, signs and landscaping should be applied.

Consolidation of small parcels should be encouraged in the McKeon Industrial Park. Similarly, the small parcels in the southeast portion of the industrial area should be consolidated for more efficient access and flexibility for use and expansion. Generally, industrial parcels should be as large as possible. Access from Francisco Boulevard to new industrial parcels should be limited, with driveways at least 400 feet apart along Francisco Boulevard. The careful selection of uses in this area will insure the most employment and revenues.

Noise reducing construction equipment shall be utilized and the design of industrial and commercial structures shall incorporate energy conservation measures.

8. Fringe Retail

This area is designated as a commercial services land use to accommodate large retail space users. Since the fringe retail area is located at the southern entrance to San Rafael and can also be looked down upon from Highway 101, the design of buildings, signs, landscaping and parking areas should adhere to high standards. Noise reducing construction equipment shall be utilized and the design of structures shall incorporate energy conservation measures.

9. Point San Quentin Ridge

This area provides a significant visual backdrop to the southern end of the central San Rafael valley. The upper portions of the ridge should be kept as open space to maintain this backdrop. Therefore, development is to be permitted on the lower slopes of the ridge only. The ratio of development area to open space area for the entire ridge shall be in the range of 30 to 40 percent development, 60 to 70 percent open space.

D -5-

8. Open Space/Wildlife Preservation (See Map No. 2)

The East San Rafael area includes a variety of open spaces and wildlife habitats offering pleasant views for humans, and feeding, nesting and shelter opportunities for water organisms, birds and small animals. The East San Rafael Redevelopment Plan offers a balanced approach to integrate the preservation of these existing habitats and open spaces with the development of the surrounding properties. This plan adds over 80 acres to the permanently preserved wetlands plus additional acreage in the Holiday Magic property. It increases the Bay surface by 35 acres and increases the Bay shoreline by 1.44 miles. It preserves an additional 59-69 acres of hillsides as open space.

It must be emphasized that wildlife preservation and open space acquisition efforts within the East San Rafael area must also be considered in the light of wildlife preservation and open space acquisition that has been accomplished throughout the City's entire sphere of influence. To date, actions undertaken in whole or in part by the City have resulted in securing as permanent open space 6.5 (4,224 acres) square miles of the total 32.7 square miles of land within the City's sphere of influence. In addition, in an effort to preserve marshland habitat, the City's General Plan restricts development in all major existing marshlands along the Bay shoreline.

It is the intent of the East San Rafael Redevelopment Plan to preserve the most valuable existing wildlife habitats in the area. A street cleaning program will be implemented to reduce the amount of urban contaminants which would mix with storm water runoff and flow into the ponds and ponding areas, thus decreasing their water quality and wildlife values. In addition, if water quality in the ponding areas decreases, Bay water will be circulated into the ponding areas by the use of existing pumps. It is also the intent of the Plan to provide public access to and use of the shoreline by provision of automobile access points and pedestrian and bicycle paths linking the shoreline open spaces. To accomplish these intentions, the following specific actions are to be implemented as part of this plan. (The number refers to the legend on Map 2 "Open Space/Wildlife Preservation".)

1. Seastrand Marsh

The 4-5 acre marsh area should be preserved and if possible upgraded by breaching the dike and subjecting it to tidal action.

2. Pickleweed Park and Shoreline

The City purchased this 19.5 acre site in 1976 at a cost of over \$700,000. This plan designates its land use as recreation and open space wetlands. The park plan for the area will include an expansion of existing recreational facilities, an area to be planted with indigenous vegetation, and an area to be excavated and restored to tidal action. The existing marsh area located to the east of Pickleweed Park shall remain in its existing state.

3. Tideland Marsh

In conjunction with the Spinnaker Point proposed development, the City has requested that this 45 acre shallow marsh tidelands be permanently preserved. It will be dedicated to the City.

D -6-

4. Shoreline Park

A 100 foot wide linear park will be established along the bay shoreline from the southern boundary of the City to the Marina. The public will have complete access to this park. Components of this park are as follows:

4-a Schoen Park

This existing 6000 square foot park is to be expanded by 24,800 square feet and will include a picnic and viewing area on the levee.

4-b Spinnaker Point Public Access

Public access to the levee along the two thirds of a mile perimeter of the Spinnaker Point development will be provided.

4-c Marina Shoreline Access

Public access to the shoreline and along the marina entrance channel will be provided. In addition, picketweed will be planted along the shoreline.

4-d Shoreline Park Northern Main Access Point

Public Access to the Shoreline Park will be provided at this point. Facilities planned include parking, pedestrian walkways, and picnic equipment.

4-e Shoreline Park Central Access Point

Public parking and picnic facilities will be provided at this central access point to the park.

4-f Shoreline Park Southern Access Point

Public vehicular access and parking will be provided at this terminus to the park.

5. Spinnaker Point Ponding Area

A lagoon area of 5 acres will be maintained.

6. Marina

The marina will add 35 acres of water surface and 1.44 miles of shoreline to the Bay.

7. Lands of Holiday Magic

A portion of this area is to be preserved in its existing state. It is suggested that 25 acres be developed and 55 acres be restored to tidal action as a marsh.

8. Drainage District Ponding Areas

8-a An 18 acre drainage pond has been added to this area.

8-b A 2 acre drainage pond has been added to this area.

p -7-

9. Ponds

These 3 existing ponds totalling 6.45 acres are to be preserved.

10. Point San Quentin Ridge

From 59 to 69 acres of natural hillside are to be preserved as permanent open space.

C. Transportation (See Map No. 3)

Specific recommendations are made for the individual components of the East San Rafael transportation network. These are guidelines related to the width of the travelway and the total right-of-way, including parking, pedestrian walkways, bikeways, and landscaping. All travel lanes shall be twelve feet wide with an additional two feet for curb and gutter to outside lanes. On-street parking, where provided shall be eight feet wide, including the gutter width. On arterial streets, having a main function of access and circulation, parking strips shall not be developed. Pedestrian walkways shall be three to four feet wide depending on the expected pedestrian flow and the abutting land uses. Landscaping widths should be a function of the overall landscaping plan and have a minimum width of five feet. Bikeway widths of eight feet for two way operation are indicated.

The Shoreline Park will include automobile access points and parking, but will not include automobile passage through the length of the park except for maintenance and emergency vehicles along the top of the levee. Pedestrian/bicycle trails will run the length of the parkway, connecting with an overall trail system at each end.

1. Highways

Highway 17 - Beautification work shall be pursued with Cal Trans to upgrade the appearance of this major entrance to San Rafael.

2. Arterials

Francisco Boulevard, East - This street will provide accessibility to the industrial development proposed for the area. Because of the relatively low intensity of proposed development and the major orientation of trips to and from this area to the north, low traffic volumes are forecasted for Francisco Boulevard.

Access from Francisco Boulevard to new industrial parcels should be limited, with driveways at least 400 feet apart. Francisco Boulevard shall not be widened, however left hand turn lanes shall be provided where necessary.

p -8-

Bellam Boulevard - This facility which is designated as a local arterial in the San Rafael General Plan will exhibit the highest level of traffic demand in the East San Rafael area. Bellam Boulevard combines the freeway related traffic through its interchange with Highways 17 and 101, with local traffic arriving via East Francisco Boulevard north of Bellam. As a result, the traffic volume forecast for ultimate development will require an upgrading of the intersections of Bellam Boulevard with East Francisco Boulevard and Kerner Boulevard. Furthermore, the ultimate development of Bellam will require a six-lane section between Andersen Drive and East Francisco Boulevard.

Currently, there are plans prepared and budgeted by the California Department of Transportation (CALTRANS) to upgrade this road section. Specific intersection channelization and signalization requirements are somewhat dependent upon the Redevelopment Plan for the total Central San Rafael Redevelopment Area.

3. Collectors

Andersen Drive - No further action is planned in regard to the Andersen Drive extension until determined necessary for development of lands of Maggioria & Ghilotti.

Kerner Boulevard - This road is to follow the San Rafael General Plan which indicates the extension of Kerner Boulevard as a continuous secondary roadway.

Catalina Boulevard - This facility is proposed as a secondary roadway between Bellam Boulevard and Canal Street. The proposed Spinnaker Point development, and the Marina, will result in relative light traffic volumes on Catalina Boulevard because most of the traffic associated with the Marina will arrive and leave via Bellam Boulevard.

Canal Street - This loop will basically serve as access and circulation for the Spinnaker Point residential area and also for access to the northern portion of the Marina. Therefore, this road will experience light traffic volumes mostly related to the proposed residential area.

D. Flood Control

The East San Rafael area includes two Drainage Assessment Districts formed for the purpose of providing storm water flood control. Both of these Districts have provided the necessary storm drainage facilities and retention ponds to accommodate storm water runoff and alleviate previous flooding problems occurring in East San Rafael.

To provide protection from the Bay, property owners are required jointly to upgrade the existing shoreline dike to levee standards to the satisfaction of the City Engineer within three years or bonds will be issued by the existing assessment district for this purpose.

Property owners making application for permanent construction before completion of the levee must: 1) fill to a minimum level of elevation +9.0 MSL to the satisfaction of the City Engineer, and 2) enter into an agreement with the City, as approved by the City Attorney, holding the City harmless from either:

- a) damage to applicant's site from flooding or levee failure;
- b) damage to adjoining or other low-level property, as a result of water runoff from applicant's property due to high-level fill.

E. Urban Design

The East San Rafael area has two prominent freeway entrances that serve as "visual gateways" to the City of San Rafael. Both Highway's 17 and 101 offer long range and elevated views of East San Rafael and as a background, the entire San Rafael valley. In these important entrance areas physical blight should be eliminated and high standards of urban design implemented. Visual urban design concerns should address equally the long range vistas across the valley, medium range vistas from the elevated highways of "roofscapes" and the close range vistas of building designs, public and private signs and landscape improvements.



1400 FIFTH AVE, SAN RAFAEL, CALIF 94902/PHONE (415) 456-1112

MAJOR
C. PAUL BETHUN
CONSTRUCTION
JOHN A. BOWEN
JAMES S. BOWEN
JACK G. BOWEN
EDN MUNDEN
WILLIAM J. BIELER

September 22, 1978

Col. John M. Adsit, District Engineer
Department of the Army
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, California 94105

Attn: Mr. Dennis W. Ceresse, Project Manager

Re: East San Rafael Baylands - Marina

Dear Col. Adsit:

This is to notify you of a modification to the June 27, 1977 Urban Design and Development Policy Statement for East San Rafael. That plan included the concept of a 600 berth marina to be developed by the City with money advanced by the State through the Department of Navigation and Ocean Development (Sec. A4 on page 4; B6 on page 7). Please delete that from the plan.

Several years ago when this plan was developed and initially explained to the Corps, we anticipated the completion of an EIS by the fall of 1977 and construction permits shortly thereafter. The EIS has not yet cleared your office; and this additional delay, in conjunction with inflation, has raised the cost of this project beyond what the City can afford. Therefore, the City Council has determined not to renew the option on this land when it expires this October. Hence, the land will remain in its present ownership.

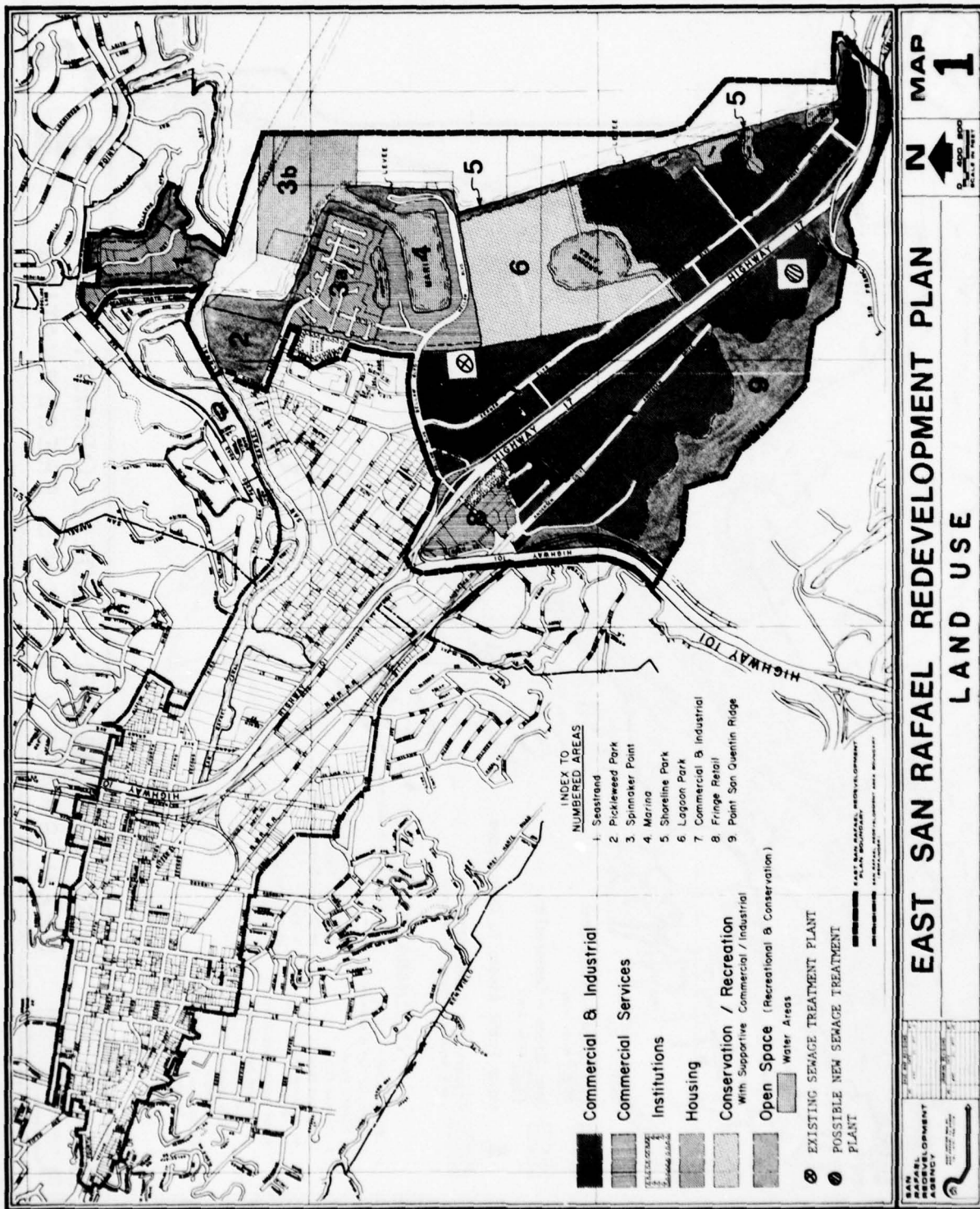
The General Plan for the City of San Rafael indicates this area as having a land use potential for either "residential" or "open space".

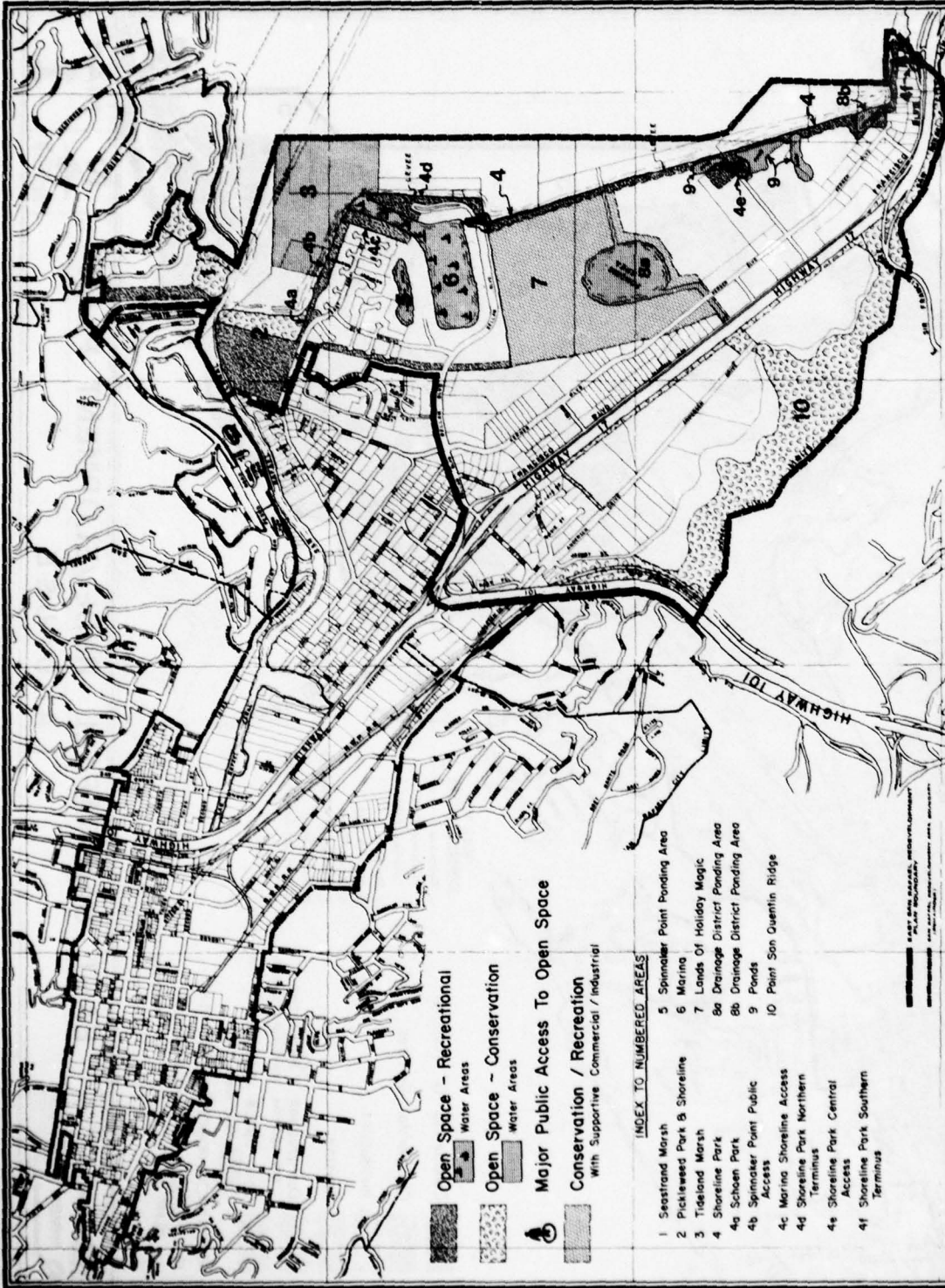
Sincerely,

WILLIAM J. BIELER
City Manager

WBJ/mm
cc: Herbert G. Hotchner

D-11



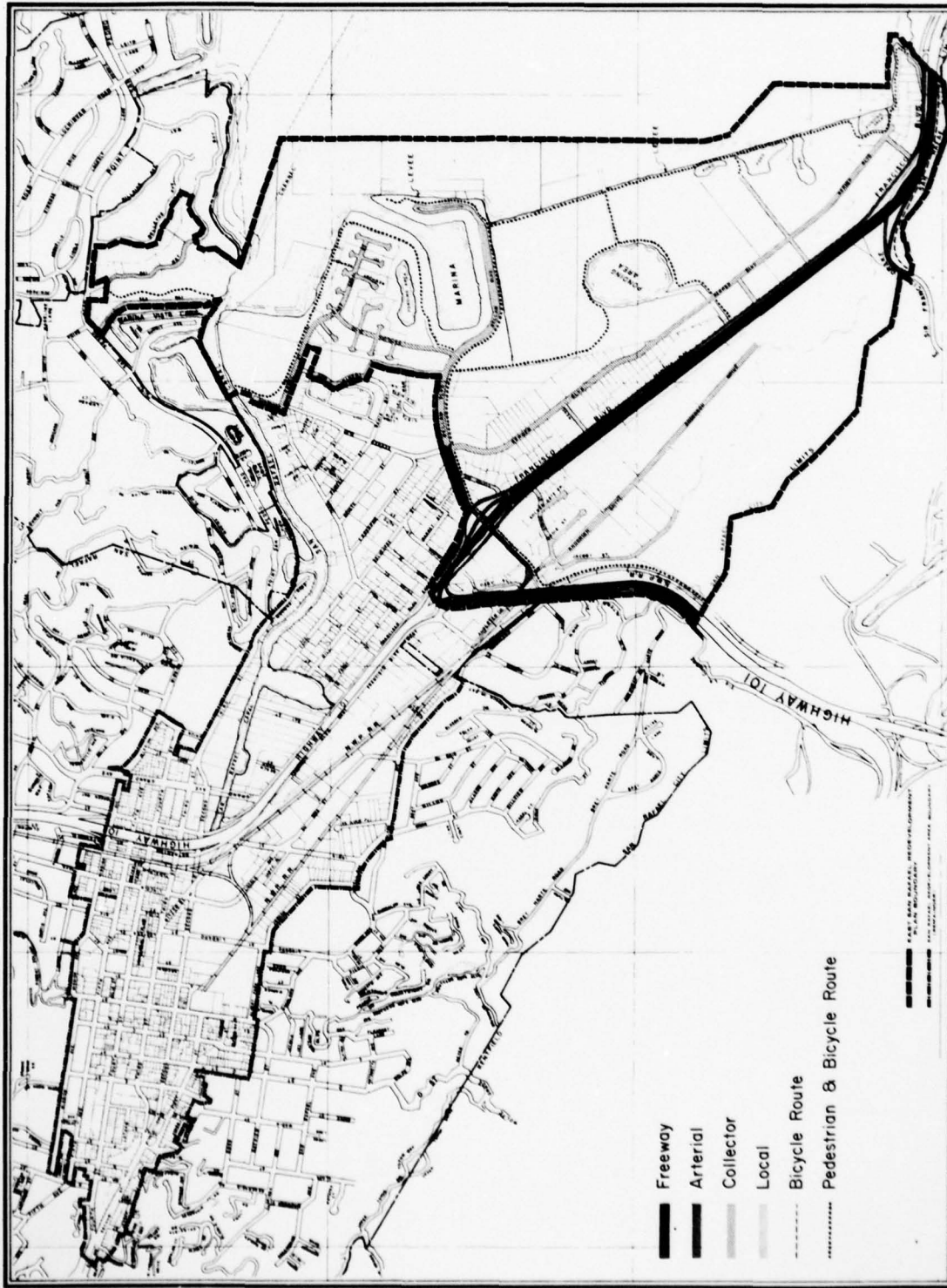


EAST SAN RAFAEL REDEVELOPMENT PLAN

OPEN SPACE / WILDLIFE PRESERVATION

MAP 2

N



- Freeway
- Arterial
- Collector
- Local
- Bicycle Route
- Pedestrian & Bicycle Route

MAP 3



EAST SAN RAFAEL REDEVELOPMENT PLAN TRANSPORTATION / CIRCULATION



APPENDIX E

COMMENTS AND RESPONSES TO

EAST SAN RAFAEL BAYLANDS DEVELOPMENT

DRAFT ENVIRONMENTAL STATEMENT

APPENDIX E

COMMENTS AND RESPONSES TO DRAFT ENVIRONMENTAL
STATEMENT ON EAST SAN RAFAEL BAYLANDS DEVELOPMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX
215 Fremont St.
SAN FRANCISCO, CALIFORNIA 94105

Project No. D-COE-K35010-CA

Colonel H. A. Flertzhelm, Jr.
District Engineer
Corps of Engineers
211 Main Street
San Francisco, California 94105

JUN 2 1977

Dear Colonel Flertzhelm:

The Environmental Protection Agency has received and reviewed the Draft Environmental Statement for the East San Rafael Baylands Development Regulatory Permit Applications, Marin County, California.

EPA's comments on the Draft Environmental Statement have been classified as Category LO-2. Definitions of the categories are provided on the enclosure. The classification and the date of EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act. Our procedure is to categorize our comments on both the environmental consequences of the proposed action and the adequacy of the environmental statement.

EPA appreciates the opportunity to comment on this Draft Environmental Statement and requests two copies of the Final Environmental Statement when available.

If you have any questions regarding our comments, please contact Patricia Sanderson Port, EIS Coordinator, at (415) 536-6266.

Sincerely,

David L. Collins
Paul De Falco, Jr.
Regional Administrator

Enclosure

cc: Council on Environmental Quality

RESPONSES TO COMMENTS BY UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

1. The study is now mentioned in paragraph 2.36.
2. Paragraph 2.36 now discusses the program.
3. Section 1 (paragraph 1.10ff) relates each proposed project to the Redevelopment Plan and Policy Statement. There have been changes in both land ownership and proposed development since the Draft ES. These changes are also noted in Section 1.
4. The Policy Statement for East San Rafael indicates that approximately 50 acres of land considered wetlands by the California Department of Fish and Game (Document H-4, Appendix H) would be developed for commercial and industrial use. No housing is proposed for the wetland areas. This site was chosen because it is available for development, and has access to freeway transportation. None of the proposed projects requires close proximity to the water.
5. Paragraphs 1.10ff have been expanded to note these points. Fill is primarily to allow development of the East San Rafael area, following the Redevelopment Agency Plan and Policy Statement. The only water related project is the 100 foot wide strip of open space park along the bay.
6. Alternatives to the proposed permit projects are given in Section 6.
7. Adverse impacts are discussed in Section 5. Mitigation measures are discussed in paragraphs 1.24ff.

E-1

Document E-1

799.53

E-2

Water Comments

- 1 Paragraphs 1.26 and 1.27 do not mention the current wastewater management study involving San Rafael Sanitary District which is within the study area of this environmental statement.
- 2 Paragraph 2.36 should be updated to reflect accurately the current status of the San Rafael Sanitary District as it is affected by the East Marin-South Sonoma Wastewater Management Program. A Federal EIS is currently being prepared (draft by approximately August 1977) as well as a facilities plan. The most recent proposal calls for expansion and upgrading of the San Rafael Sanitary District with a shared outfall at Point San Quentin (with Marin County SD #1). A subregional treatment plant on Point San Quentin is still possible, however.
- 3 The attempt to evaluate several independent actions simultaneously is very commendable, however the DEIS fails to relate the proposed actions to the overall development plan. The final EIS should relate the individual projects to the Proposed Redevelopment plan. It should address details, where applicable, of proposed land use, compatibility with the East San Rafael Plan and interim measures to be taken to assure localized impacts are reduced.
- 4 Continued, proliferation of piecemeal projects will result in ultimate loss of ~~2~~ 75% of the remaining productive wetland area. No discussion is contained in the DEIS or EIR of the need for housing and industrial development in these wetland areas. There has been no demonstration that the proposed projects must be located in or in close proximity to the water to serve their basic purposes (except for the marina); the FEIS should address this issue.
- 5 Each of the proposed permit actions should be specifically addressed in the FEIS; i.e., specifically, what is the purpose of the proposed fill project, what are the requirements for water access, and what alternatives have been considered? Where unacceptable adverse impacts will occur in the fill area, and to what extent has mitigation been provided?
- 7

E-3

EIS CATEGORY CODES

Environmental Impact of the Action

LO--Lack of Objections

EPA has no objection to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER--Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU--Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1--Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2--Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3--Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

E-4

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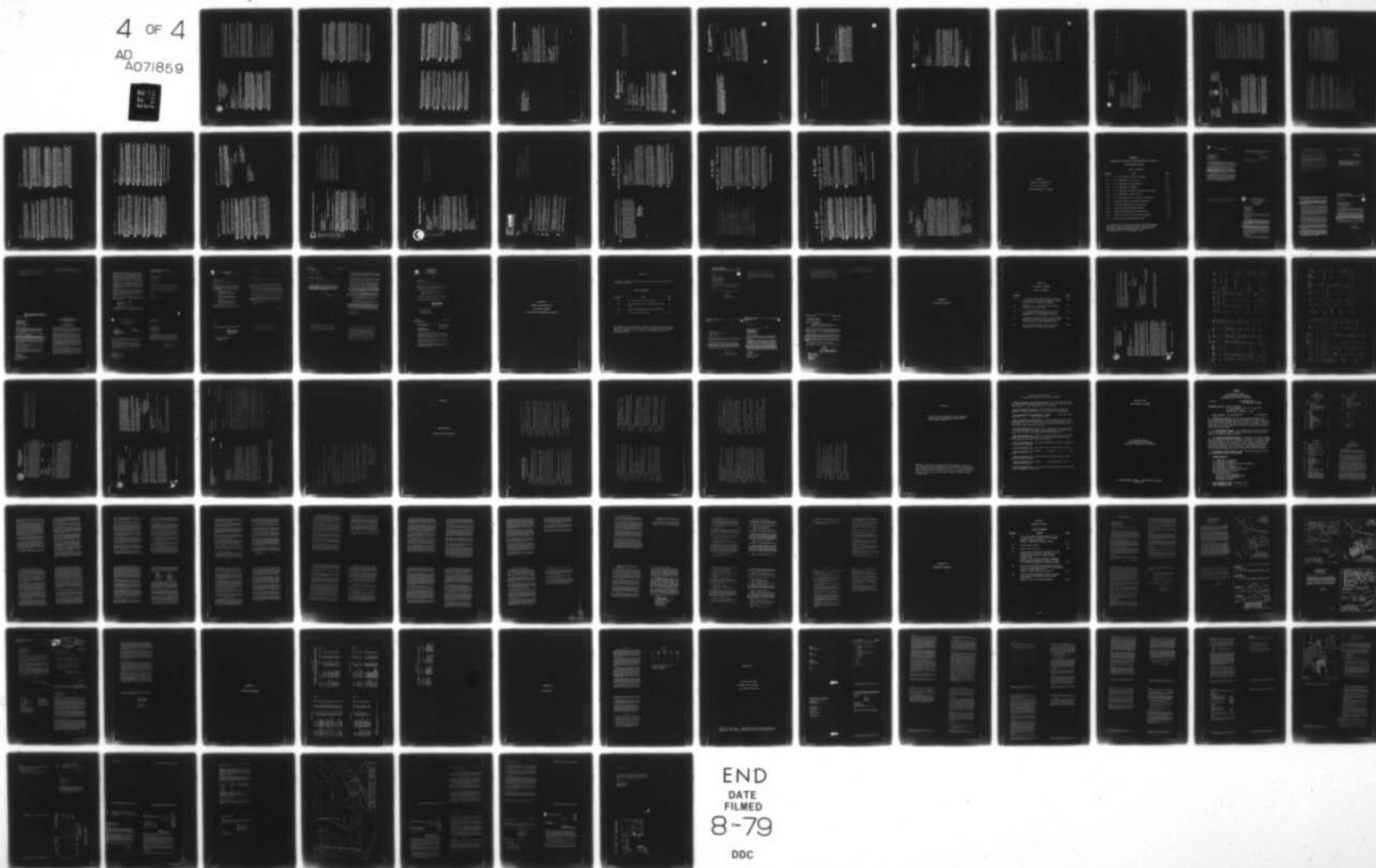
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EAST SAN RAFAEL BAYLANDS DEVELOPMENT REGULATORY PERMIT APPLICAT--ETC(U)
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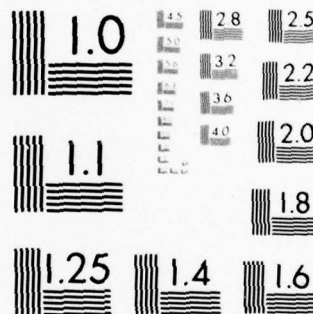
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UNITED STATES
DEPARTMENT OF THE INTERIOR

OFFICE OF THE SECRETARY
PACIFIC SOUTHWEST REGION
BOX 36098 • 450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102
(415) 556-8200

ER-77/224

April 22, 1977

Colonel H. A. Flertzheim, Jr.
District Engineer
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, California 94105

Dear Colonel Flertzheim:

The Department of the Interior has reviewed the draft environmental statement for East San Rafael Baylands Development Regulatory Permit Applications, Marin County, California.

General Comments

1 We suggest the statement discuss land modifications and construction activities in more detail. We understand that the City of San Rafael is in the process of preparing a specific plan of development along with a comprehensive fish and wildlife mitigation plan for the entire East San Rafael area. The final statement should discuss these comprehensive plans and evaluate all impacts on the areas identified for development. We suggest a supplemental environmental statement treating the entire area proposed for ultimate development, including mitigation plans, would be the most appropriate method of permitting a meaningful environmental review of proposed activities.

2 The area that is proposed for filling is indicated to be, or to have been, tidal marshland that could be restored to its former state. However, the proposed action would foreclose this possibility and would have significant adverse effects on the local ecosystem. The piecemeal filling of marshland around San Pablo Bay would also have cumulative hydrologic effects on the entire Bay. We suggest these effects be addressed in the final statement.

3 We have been concerned for some time over the future of the present and historic tidelands adjacent to and in the vicinity of East San Rafael. Much of this land possesses high wildlife value and has potential for increased value if returned to its original condition as tidelands and marsh. The mitigation/compensation plan being prepared for incorporation into the final environmental statement should be as comprehensive as possible and

RESPONSES TO COMMENTS BY THE UNITED STATES DEPARTMENT OF THE INTERIOR

1. The sites proposed to be filled are described in Section 1.10ff. This ES is based upon the information contained in the Central San Rafael Redevelopment Plan and Urban Design and Policy Statement of June 1977.
2. The purpose of this ES is to consider all proposed development according to the City Policy Statement including proposed mitigation. At this time a supplement is not necessary.
3. No study has been made of the cumulative effects on the entire Bay. Comment is acknowledged.
4. Mitigation measures are discussed in paragraphs 1.24ff. The adverse impacts upon wildlife from development are covered in paragraph 5.01.
5. A detailed study will not be done for this ES. The San Rafael General Plan includes a Seismic Safety Element which designates the East San Rafael area as high seismic risk and requires studies for various developments that might be proposed. The City considers seismic risks and proposes mitigation during its review of development applications.
6. According to The City of San Rafael's archaeological sites map, which was compiled based on information submitted by Duncan and Jones, general plan consultants, and Tom Jackson, registered archaeologist, there are no known archaeological sites in the flatland area of East San Rafael. Prior to approximately 1950, this area had been under water.
7. This will be done.
8. This information has been added to paragraph 1.08.
9. Same as No. 4 above.
10. See Appendix B, pages VI-B-10 to VI-B-13 for geologic maps. Paragraph 2.22 presents a concise geologic description.
11. Reference to the ponds as storm water runoff collectors has been added to paragraph 2.06.
12. Figure 4 was intended to show existing and general proposed land uses. It has been modified for clarification. Specific plans for future land uses are given on Figure 5.
13. Figure 5 has been changed to the latest proposed uses. Conservation/Recreation is explained in Appendix D, page 4 paragraph 6.

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Document E-2

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14. The parcel in question was not considered to be a viable wetland by the Corps as defined by the Rules and Regulations for the Regulatory Program. The land described in application 9336-47 is therefore outside of Corps jurisdiction.
15. Application No. 11314-47 has been withdrawn. The site in question has been purchased by the City of San Rafael for use as a park and marsh. This use is consistent with the Redevelopment Agency Plans.
16. This alternative is discussed in Section 6.
17. This information is discussed in paragraphs 2.10 and 4.06.
18. The statement has been deleted.
19. Dredge spoils were utilized as fill only on Pickleweed Park, Permit No. 10449-53, 1975. No structures are proposed on this fill. The Policy Statement indicates this land will be used for a park with a portion of it preserved as a marsh.
20. The Policy Statement indicates that the existing ponds (parcels 8A, 8B, 5A, 5B, 6, 1, and 2, Plate 7) will be preserved. The value of the ponds to wildlife is discussed in paragraph 2.06.
21. The City of San Rafael has not proposed the building of a ferry terminal. Reference to it has been deleted.
22. This information is included in Section 5.

E-7

should recognize all impacts on the marina and the lowlands and ponding sites in the East San Rafael area now providing fish and wildlife habitat. The plan should clearly show what wetland values will be lost and how these losses would be compensated.

The discussion of geology and geologic hazards is generally adequate. Among the geology-related environmental impacts that have been identified are compressibility of Bay mud and refuse, slope instability under loading of additional fill and/or structures, earthquake-induced liquefaction, lateral spreading, differential settlement, and earth lurching. We suggest that these potential problems be evaluated in more detail to assure that appropriate mitigative measures would be practiced in the proposed filling and development.

Although there are no known cultural resources in the proposed project area, resources as yet unidentified may be present. A substantive survey should be conducted to support the conclusion that there will be no impact upon cultural resources as a result of the proposed project. The potential for cultural resources exists anywhere above the high tide line. To avoid possible project delays due to discovering the resources after construction begins all cultural resources that may be affected should be located and identified prior to that time. The most effective means of accomplishing this would be an intensive survey of the entire project area, above the high tide line, conducted by a qualified archaeologist.

If cultural resources are located within the project area, their significance, according to the National Register of Historic Places criteria, should be assessed. The State Historic Preservation Officer should be contacted to determine if identified resources are considered eligible for national register inclusion. The State Historic Preservation Officer may be of assistance in assessing potential impacts to cultural resources and in developing a mitigation program designed to alleviate any adverse effects. Documentation of consultation with the State Historic Preservation Officer should be included in the final statement in order that a more comprehensive evaluation of the proposed project will be possible.

Copies of any cultural resource reports for the proposed project should be made available to the Western Archeological Center, National Park Service, P.O. Box 45008, Tucson, Arizona 85717, to facilitate a more informed review.

Specific Comments

Page 2, Section 1.07. The text could indicate that the pending permits would authorize approximately 56 acres of fill on former tidelands in addition to whatever fill would be required with the selected marina development plan.

2

E-8

9 Page 6, Section 1.28. Although the fish and wildlife mitigation plans are tentative, we believe that possible measures should consider not only the present marina construction but also modification of any of the lowland and former tideland areas south of this site.

10 Page 8, Sections 2.02-2.30. We suggest that the description of the physical environment contained in these sections include a concise geological description with cross-reference to the appended Environmental Impact Report (Appendix B) prepared by independent consultants. The principal bedrock units in the area should be identified.

11 Page 9, Section 2.07. While there may be only three permanent ponds in the project area, ponds are created on low-lying land during normal rainy seasons. The statement should clarify that the three permanent ponds are not used for salt production.

12 Page 19, Section 3.02a. This section is misleading in its references to existing land uses in the project area. This is particularly true in its reference to plate 4 which apparently does not show existing land uses as stated but potential land uses.

13 Page 22, Section 3.16. We suggest that parts of plate 5 be clarified or corrected. Specifically, we understand that a point of land protruding from the bayfront dike is no longer a project component and should be excluded. Also, the designation "Conservation/Recreation (with Supportive Commercial/Industrial)" should be further explained.

14 Page 23, Section 4.01a. While this recent application (9336-47) is for an activity already accomplished, it should be recognized that the project resulted in the loss of 5 acres of wildlife habitat.

15 Page 23, Section 4.01b. Permit application No. 11314-47 would raise the height of the area mentioned in subsection g. and might conflict with eventual Redevelopment Agency plans for the site. Information should be provided to indicate resolution of this possible conflict.

16 Page 24, Section 4.04. We believe a significant acreage of former tideland could be easily restored to full or partial tidal action without unreasonable effort. In addition to numerous restoration projects being considered and accomplished around San Francisco Bay, the mitigation alternatives listed on page 6 of the draft include returning a portion of these areas to tidal action.

17 Page 25, Section 4.08. The endangered California clapper rail and salt marsh harvest mouse may occur in marshland within project area boundaries. Further information on these two endangered species within the project area should be developed and discussed.

18 Page 25, Section 4.09. The statement relating to feasibility of tidal restoration comments relating to Section 4.04 seems inappropriate considering statements made elsewhere in the text, such as on page 6, item 1.28, which refers to planting marsh plants and breaching dikes for tidal action.

19 Page 27, Geological Impacts, (Page VI-B-5ff, Appendix B). The potential hazard of dredged fill liquefaction from seismic shock and associated damage to structures on the fill is probably the greatest hazard to which the project would be subjected. Although this hazard is recognized and discussed through a chain of cross-references, it merits full discussion in the main body of the text. The engineering properties of the dredged fill, especially the property of dilatancy, should be discussed in more detail, with a summary including a statement of the anticipated response of the fill to seismic shock of the maximum expected intensity. In areas of high seismic risk, structures should not be founded on unconsolidated sediments such as dredged fill.

20 Page 35, Section 5.01. The loss of present wildlife values on the salt-water ponds should also be discussed in addition to their potential values. These ponds, under present conditions and in former tidelands, exhibit high values for wildlife associated with the marina site which would be lost with the project.

21 Page 37, Section 6.13. The location of the ferry terminal should be clarified in the text and figures. We believe this potential project should be discussed in detail including growth inducing and cumulative impacts.

22 Page 39, Section 7.01. The text should acknowledge that while mudflats and marshes on the project site are no longer open to tidal action, there are extensive areas of pickleweed, shallow water and saline weeds that provide high value wildlife habitat. The document should describe that long-term use by wildlife and associated values will be forfeited for additional urban development with attendant increases in air, noise, and water pollution and need for more public services.

We appreciate the opportunity to review and comment on the draft environmental statement.

Sincerely,

Hardy Pearce
Hardy Pearce
Regional Environmental Review
Officer

cc:
OEPR w/c incoming comments
Regional Director, FWS, Portland
Regional Director, BOR, San Francisco
Regional Director, NFS, San Francisco
Director, USGS, Reston
Regional Director, BOM, Washington
Regional Director, BuRec, Sacramento



UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230
(202) 377-3111

April 26, 1977

Colonel H. A. Flertzheim, Jr.
District Engineer
Corps of Engineers
Department of the Army
211 Main Street
San Francisco, California 94105

Dear Colonel Flertzheim:

This is in reference to your draft environmental impact statement entitled, "East San Rafael Baylands Development Regulatory Permit Applications, Marin County, California." The enclosed comments from the National Oceanic and Atmospheric Administration, National Marine Fisheries Service, were received subsequent to our letter transmitting Departmental comments dated April 15, 1977.

Thank you for giving us an opportunity to forward these additional comments for your consideration. We hope they will be of assistance to you.

Sincerely,

Sidney R. Galler
Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

Enclosure - Memo from National Marine Fisheries Service,
April 6, 1977



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southwest Region
300 South Ferry Street
Terminal Island, CA 90731

APR 22 1977

DATE: April 6, 1977

TO: EE, Office of Ecology and Environmental
Conservation

Robert L. Schuler APR 22 1977

THRU: F5, Acting Assistant Director for Scientific
and Technical Services

FROM: *Gerald V. Howard*
FSW, Gerald V. Howard, Regional Director
Southwest Region

SUBJECT: Review of DEIS #7703.17
East San Rafael Baylands Development
Regulatory Permit Applications, Marin
County, CA (CE)

The subject DEIS which accompanied your memorandum of March 16, 1977 has been reviewed by the National Marine Fisheries Service. The following comments are offered for your consideration:

The project identified in the subject DEIS is the general topic of discussion in ongoing meetings with the Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Game, National Marine Fisheries Service, City of San Rafael and others. Specific mitigation plans are the subject of negotiations between the city planning agency and the various resource agencies.

Most of the area being considered for development and identified in the DEIS is former marshland which has been diked off and isolated from tidal action. A portion of this area has received some fill and is not considered restorable. Other portions have not received fill and could be allowed to revert to salt marsh if tidal action were restored. If certain areas were to be allowed to revert to tidal salt marsh, they would have a beneficial impact on fishery resources. Tentative mitigation plans for restoring marshland have been identified as possibilities by the city planning agency, but as yet no final specific plans have been proposed.

RESPONSES TO COMMENTS BY THE UNITED STATES DEPARTMENT OF COMMERCE

1. Final mitigation measures are discussed in paragraphs 1.24ff.
2. Same as No. 1 above.



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Certain alternatives identified in the DEIS include the placement of fill on areas which are potentially restorable to tidal marsh. These alternatives should not be chosen as future benefits to fishery resources would be precluded. Any plans to place fill on these restorable areas should be accompanied by mitigation/compensation plans to restore other areas to tidal action and allow salt-marsh habitat to develop. Restoration of tidal salt-marsh habitat which was once established in the project area would be of substantial benefit to fishery resources.

2



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Hatteras, NC 28540

C52/JLR

APR 12 1977

APR 14 1977

TO: William Aron
Director
Office of Ecology and Environmental Conservation

FROM: Gordon Lill
Deputy Director
National Ocean Survey

SUBJECT: DEIS #7703.17 - East San Rafael Baylands Development
Regulatory Permit Applications

The subject statement has been reviewed within the areas of NOS responsibility and expertise, and in terms of the impact of the proposed action on NOS activities and projects.

The following comment is offered for your consideration.

The plan, as outlined, is very satisfactory and without any significant detrimental effects. However, the appendices appear to be very poorly organized with many pages upside down, and the figures and photographs very difficult to read. The reproduction method of the appendices could be improved to facilitate proper review of the proposed plan.

1



RESPONSES TO COMMENTS BY THE U. S. DEPARTMENT OF COMMERCE

1. Revisions and corrections have been performed accordingly.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Rockville, Maryland 20850

APR 8 1977

MEMORANDUM

DATE : April 8, 1977
TO : Dr. Aron *RAH*
FROM : Bob Kifer
SUBJECT : East San Rafael Baylands Development Regulatory Permit Applications DEIS 7703.17

Although the Draft EIS discusses the relationship of the proposed action to the San Francisco Bay Plan, managed by BOIC, no recognition is given to the approved San Francisco Bay Segment of California's Coastal Management Program. Mr. Robert Knecht approved the BOIC segment on February 16, 1977 under the authority of Section 306, of the Coastal Zone Management Act of 1972 as amended. This approval activates Section 307(c) and (d) of the CZMA, thereby requiring all Federal activities to be consistent, to the maximum extent practicable with the approved San Francisco Bay Management Program. These provisions also require that all Federal licenses and permits, affecting the coastal zone of the Bay area be certified for consistency with the program and approved by BOIC before the license or permit can be issued. These provisions and the Bay Area Management Program should be discussed in the FEIS.



1. This information has been included in paragraph 3.08.



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGIONAL OFFICE
45 United Nations Plaza
SAN FRANCISCO, CALIFORNIA 94102
Office of Environmental Affairs

OFFICE OF
THE REGIONAL DIRECTOR

April 18, 1977

H. A. Flertzhelm, Jr.
Colonel, CE
District Engineer
Department of the Army
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, California 94105

Dear Sir:

The Draft Environmental Impact Statement for East San Rafael Baylands Development Regulatory Permit Application, Marin County, California has been reviewed in accordance with the interim procedures of the Department of Health, Education and Welfare as required by Section 102(2)(c) of the National Environmental Policy Act, PL 91-190.

1 The EIS is inadequate in its assessment of the potential impacts of the proposed housing development. There is no discussion of the population that would be generated by the development and the number of school age children who will need educational services. It is mentioned in the DEIS that Bahia Vista Elementary, Davidson Middle and San Rafael High Schools are located in the project area and presumably would be required to serve the student population. There is no indication that the school districts have been involved in the determination of the adequacy of facilities or services. The Final EIS should contain assurances that the school districts are aware of the potential increases and have made plans accordingly.)

2 We note that the EIS does identify the Health Care Facilities that serve the area but there is no indication of their ability to meet the additional service needs of a new and increased population. Coordination and consultation with local health officials is recommended to adequately provide the necessary health care that may be needed.

The opportunity to review this statement was appreciated.

Sincerely,

James D. Knochenhauer
James D. Knochenhauer
Regional Environmental Officer

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RESPONSES TO COMMENTS BY THE UNITED STATES DEPARTMENT OF HEALTH,
EDUCATION AND WELFARE

1. Mr. Brad Holland, Principal of Bahia Vista Elementary School, has reviewed the EIR projections of school population from the proposed residential development and has stated that the Bahia Vista Elementary School can accommodate the additional students.
2. Marin General Hospital is located in Greenbrae, about 1-1/2 miles from the proposed Spinnaker Point development. A survey has indicated that this facility would be able to meet the needs of the increased population in the project area.

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

2828 Chiles Road, Davis, CA 95616

April 7, 1977

E. A. Flertzhelm, Jr.
Colonel, CE
District Engineer
Department of the Army
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, California 94105

Dear Colonel Flertzhelm:

We acknowledge receipt of the draft environmental statement on East San Rafael Baylands Development, Regulatory Permit Applications, Marin County, California, that was addressed to the Soil Conservation Service on March 3, 1977.

We find no conflict with any Soil Conservation Service on-going or planned program or project. We have reviewed the above draft environmental statement and find that there are no controversial items in the statement within the realm of the Soil Conservation Service's expertise and responsibilities.

We appreciate the opportunity to review and comment on the proposed actions.

Sincerely,

Francis C. H. Lum
for FRANCIS C. H. LUM
State Conservationist

cc:

R. M. Davis, Administrator, USDA, SOC, Washington, D. C.
Fowden G. Maxwell, Coordinator of Environmental Quality Activities,
Office of the Secretary, USDA, Washington, D. C. 20250
Council on Environmental Quality, 722 Jackson Place, N. W.,
Washington, D. C. 20006 - Attn: General Counsel (5 copies)



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

REGION NINE

Two Embarcadero Center, Suite 530
San Francisco, California 94111

DATE
RECEIVED
BY
ADMINISTRATIVE BRANCH

April 19, 1977

IN REPLY REFER TO
9ED

RESPONSE TO COMMENTS BY U. S. DEPARTMENT OF TRANSPORTATION

1. Comment noted.

Colonel H. A. Flietzheim, Jr.
San Francisco District Engineer
U.S. Army Corps of Engineers
211 Main Street
San Francisco, California 94105

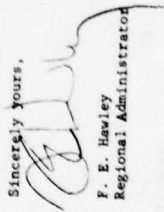
Dear Colonel Flietzheim:

We have reviewed the Draft Environmental Impact Statement for the East San Rafael Baylands Development Project in Marin County, California, and note the following:

Section 4.35 of the EIS mentions effects on Bellam Boulevard. A proposed Federal-aid project for improving this section of Bellam Boulevard is presently undergoing environmental analysis for NEPA compliance. If you desire any information concerning this project, please contact Mr. David L. Eyles, District Engineer, Federal Highway Administration, P.O. Box 1915, Sacramento, California 95809 at (916) 448-3541.

We have no further comments on the subject EIS and appreciate this opportunity to review the Draft Statement.

Sincerely Yours,


F. E. Hawley
Regional Administrator

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Document E-6

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OFFICE OF THE SECRETARY
-RESOURCES BUILDING
1418 NINTH STREET
95814

(916) 445-5656

Department of Conservation
Department of Fish and Game
Department of Parks and Recreation
Department of Water Resources
Department of Forestry

EDMUND G. BROWN, JR.
GOVERNOR OF
CALIFORNIA



THE RESOURCES AGENCY OF CALIFORNIA

SACRAMENTO, CALIFORNIA

JUN 23 1977

Colonel H. A. Fiertzheim, Jr.
District Engineer
San Francisco District
U. S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Colonel Fiertzheim:

The State of California has reviewed your "Draft Environmental Statement for East San Rafael Baylands Development Regulatory Permit Applications, Marin County, California", transmitted by Notice of Intent (SCH 77031404) dated March 14, 1977, and submitted to the Office of Planning and Research (State Clearinghouse) in the Governor's Office. This review fulfills the requirements under Part II of the U. S. Office of Management and Budget Circular A-95 and the National Environmental Policy Act of 1969.

The State's review has been coordinated with the Departments of Conservation, Fish and Game, Navigation and Ocean Development, Parks and Recreation, Water Resources, Food and Agriculture, Health, and Transportation; the Air Resources Board, the Solid Waste Management Board, the State Water Resources Control Board, the San Francisco Bay Conservation and Development Commission, the Energy Resources Conservation and Development Commission, the Public Utilities Commission, and the State Lands Division of the State Lands Commission.

The State of California has a number of concerns regarding the statement and consequently cannot take a position at this time.

In view of the potential damage to tidelands and former tidelands from the collective impacts of the projects under consideration, we request that the Corps arrange a meeting with all concerned permit applicants and potential applicants of the area to discuss the total development project and necessary mitigation to resolve as many mitigation issues as possible.

RESPONSES TO COMMENTS BY THE RESOURCES AGENCY OF CALIFORNIA

1. This has been done. A meeting was held in San Rafael on 22 September 1978 with the City of San Rafael, individual permit applicants, wildlife agencies and the Corps.
2. The description of wildlife resources has been expanded. An inventory of birds at the site is included in Appendix C. Mitigation measures are discussed in paragraph 1.24ff.
3. This information has been added to paragraph 2.10.
4. The statement has been deleted. The possibility of restoring the area to tidal marsh is discussed in section 6.
5. Mitigation measures are discussed in paragraphs 1.24ff.
6. This ES is based upon the generalized plan presented in the Policy Statement.
7. The City of San Rafael has indicated that at such times as property owners in this area apply to the City for actions requiring the City's approval, consistency with the Redevelopment Plan and Policy Statement (including mitigation measures) will be a condition of approval.
8. The Environmental Protection Agency is studying the whole East Marin-South Sonoma County region for upgrading water quality and waste-water management. The existing facilities in East San Rafael may be abandoned or improved. See paragraph 2.36.
9. The Marina proposal has been withdrawn. In the development and review process for the industrial proposals, the City and private developers will work with the State Water Quality Control Board to prepare water quality management plans if necessary to mitigate any potential water quality problems. The State Water Quality Control Board has stated that such plans are not necessary at this time.
10. Paragraph 4.3 indicates the increase in water demand that will be allowed by the Marin Municipal Water District. The water supply is considered adequate.
11. Drainage assessment districts have been established in East San Rafael to protect the area from flooding due to storm water runoff. The East San Rafael Policy Statement does not propose development that would destroy the flood control capability of these districts and, in fact, specifically incorporates the physical features of each district. These features include the ponding areas noted on Plate 6. These

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Document E-7

ponding areas have been designed to retain the total storm water runoff that can be expected within the drainage area.

12. Currently, the State Water Quality Control Board assesses the leaching possibilities of sanitary landfill in the course of their permit review procedures. The East San Rafael Policy Statement designates a use for the sanitary landfill operation existing in East San Rafael.

13. The current plan for East San Rafael does not include placing dredged material in salt marsh.

14. This will be done. See response to Comment No. 9.

15. The environmental review of each industrial development in East San Rafael will consider the possibility of contaminated runoff entering the Bay. All industrial development posing this problem shall be referred to the Regional Water Quality Control Board for review.

16. No dredging is proposed in the revised Policy Statement or Final ES.

17. The City of San Rafael is aware of the potential problems of development on filled land. The City requires a detailed and comprehensive geotechnical review of the development proposals by a Geotechnical Review Board during the City's permit application review process.

18. Specific comments will be answered.

19. Paragraph 4.09 has had flood drainage impacts added. Appendix B discusses drainage units of the East San Rafael area.

20. Differential settlement is now discussed in 4.21. Long term settlement is mentioned in 4.20.

21. Settling impacts are now included in 4.22.

22. The sentence has been deleted.

23. Paragraphs 5.06 has been added to include this information.

24. Paragraph 7.03 includes this information.

25. Paragraph 4.50 includes this information.

26. This information is included as No. 8 in the Update Section of the Final EIR, Appendix B.

27. The East San Rafael EIR states (Section VI-1-12 Appendix E) that even with additional traffic, the Bellam Boulevard intersection will maintain an acceptable level of service once the intersection improvement project is completed.

28. Consideration of vehicle conflicts caused by the interaction of through and turning movements is indicated by use of the level of service concept. Table 1-2, page VI-1-12 of Appendix B indicates the level of service that can be expected at each intersection after the complete development of the East San Rafael area.

29. No additional measures have been proposed by the city as the City maintains that an acceptable level of service will be provided.

30. According to the City of San Rafael, the elevation of Highway 17 was considered at the time of the formation of the drainage assessment district. The drainage district features were designed to protect the highway at that elevation. The facilities of the drainage district were designed on a 100-year storm return frequency. Calculations indicate that the maximum water surface elevation in the drainage channel south of Highway 17, based on the 100-year storm, would be 1.3 feet on USC and GS datum. The City of San Rafael is responsible for the maintenance and operation of the drainage facilities. The City of San Rafael maintains that the highway was constructed over bay mud and has settled since the formation of the drainage district.

31. This information has been added to paragraph 1.23 and the City is now aware of this permit requirement.

To be most productive, representatives of all property owners affected (including possible future applicants for East San Rafael Baylands Development permits as well as current applicants), Corps of Engineers, U. S. Fish and Wildlife Service, the Department of Fish and Game, and other appropriate agencies should be in attendance.

Wildlife Concerns

The Department of Fish and Game indicates they will continue to oppose applications on East San Rafael Baylands Development until fish and wildlife resources are adequately assessed and mitigation measures necessary to protect the resources are committed.

2 We find the Statement inadequate in its assessment of wildlife resources of the project area and the mitigation measures necessary to protect these resources.

3 Wildlife resources, in particular endangered species, were not properly surveyed. Paragraph 2.10 states that no rare or endangered species have been found to inhabit the East San Rafael Development Area. At the time this report was written, the area had not been surveyed for these species. Since the area contains the types of habitat utilized by two endangered species, the California clapper rail and the salt marsh harvest mouse, Department personnel conducted surveys for these two species on March 22 and 23, 1977. The results are as follows:

A tape-recorded call of the clapper rail was played in the salt marsh in the vicinity of the proposed Seastrand South Development. A response from a clapper rail was received in the area. Since clapper rail habitat exists in other areas covered by the draft Environmental Statement and the species is found here, we conclude that development of the project without mitigation will adversely affect the species.

To survey for the salt marsh harvest mouse, 41 live traps were set in the flood basin area south of the proposed marina. Two mice were captured and tentatively identified as salt marsh harvest mice. Additional trappings are now in progress to verify the identification of the species of harvest mice present and to determine the extent of their range in the project area.

4 Paragraphs 4.04 and 4.09 state that the area has been altered by man to the point that "restoration of wetlands is probably not feasible." We believe that there are several areas including the flood basin area which could easily be restored to viable salt or freshwater marsh. In particular, a large portion of the East San Rafael Development area could be developed into habitat for the endangered clapper rail.

5 The DEIS lacks a viable mitigation plan for loss of wildlife habitat in the project area. Our major concern is that proposed mitigation plans listed in

paragraph 1.28 are not firm commitments that will be implemented as part of the project proposal. Secondly, assuming they are firm commitments, they are inadequate in the amount and quality of area proposed. We recommend that additional areas be developed into marsh to replace habitat lost with project development.

6 The DEIS is also deficient in regard to firm proposals for all parcels of land in the project area. For example, the final ES should describe in detail the location of the planned spoil disposal site for the proposed marina and channel that would be sufficient to receive the dredge spoil material for the life of the project. An adequate environmental assessment cannot be made until a comprehensive plan of all development in the area and the mitigation measures to compensate for adverse impacts to the fish and wildlife resources are presented.

Department of Fish and Game personnel are available to discuss our concerns in more detail. To arrange a meeting, please contact Mr. E. V. Toffoli, Regional Manager, Department of Fish and Game, Region 3, P. O. Box 47, Tountville, CA 94599, telephone (707) 944-2443.

Water Quality Concerns

7 There should be some commitment of the sponsoring agencies, the City of San Rafael, and the Redevelopment Agency to requirements that specific mitigation measures be included in specific plans for local projects that may result in undesirable impacts. This is also true for the creation of new shoreline configuration or added recreation and public access areas through the disposal of dredged spoils. Free public access to recreational areas is important as an integral part of the plan for any proposed project of this type.

8 The discussions presented regarding water quality within the project and the hydrologic changes expected from the project do not reflect the problems which may arise. The outfall for the wastewater treatment plant which will receive an additional 270,000 gallons per day from the project is just east of the levee in shallow water and is nearly exposed at low tide. The wastewater effluent does not appear to receive proper dilution now, it will be bypassed for disposal without treatment in wet weather, and there have been several incidents of nuisance odors from plant breakdowns. Some restrictions on industrial types or operations may be necessary to assure water quality at the treatment plant and avoid system breakdowns.

In relation to the water quality of the marina, stream, and canal, there are potential problems in several areas; there is concern for the adequate flushing of the marina, pollutant loading in the backwaters, introduction of "urban" type pollutants, introduction of industrial pollutants and contaminants such as detergents, paints, solvents, grease, oil, sanitary wastes, bilge wastes, and other compounds that would be expected from the proposed activities. For the marina and related facilities, including the industrial development, there

will be need for water quality management plans to determine waste discharge requirements and the potential for chemical spills.

Marin Municipal Water District domestic water hookup for many of the developments must be closely considered in times of drought and even in wet times, as the supply in the county is finite and dependence upon imported water should not be anticipated or justified simply by developing the need. Water shortages must be addressed.

The issue of adequate hydraulics downstream of the project area is not properly addressed. There is considerable concern with the total changes that will take place in the hydrological pattern of the basin. Presently, there are areas specifically designed to prevent flooding. With the destruction of this flood control capability, there is concern for flooding in the area, perhaps even across Highway 17.

The sanitary landfill must be carefully assessed for leaching possibilities which may degrade water quality. The landfill is within a 100-year flood zone. Regulations anticipated to be implemented next year may require disposal site owners and operators to report on annual operations, and plan, prior to commencement of operation, the closing or termination of the site and the anticipated future use for the property. This anticipated requirement should be considered in planning the site.

State Board staff supports the position of the California Department of Fish and Game that dredge spoils should not be placed in the existing salt marsh habitat and that dredging activities should be designed to prevent damage to the marsh.

The applicant will be required to provide a Water Quality Control Plan for the proposed development. The contents of the plan should be developed through consultation with the staff of the Regional Board.

Waste discharge requirements will be considered for individual industries when a potential exists for a chemical spill or when runoff may cause a nuisance or adversely affect water quality and beneficial uses. Industries should be alerted to consider construction of containment facilities for potential spills or contaminated runoff to permit routing to a sanitary sewer or disposal at a suitable Class I disposal site. Such construction could eliminate the need for assignment of waste discharge requirements.

Dredging and dredge spoil disposal should be discussed in greater detail. Proposed methods of dredging, disposal methods, dredge and disposal locations, the amount, location, and kinds of organisms expected to be lost, analyses of dredged material, and description of the expected effects of dredging on the hydrology of the basin should be described in sufficient detail to permit identification of preferred alternatives and mitigation measures.

Geologic Concerns

17 The Statement has been found to be inadequate in its treatment of the geologic conditions at the site and of the effects on the proposed development. Geologic aspects are of immense importance in consideration of, and in the consequences of, development of such a site.

18 This site is largely (90 percent) a deep bay mud setting, with bedrock ranging from surface exposures to more than 80 feet beneath soft bay mud. Such a setting will react to fill placed on it by large, long-term, and differential settlements, which will have significant environmental impacts of various sorts. The Statement does not adequately list or discuss these. Specific comments on paragraphs of the Statement are as follows:

19 Paragraph 4.11 (p. 25). The Statement ignores possible consequences of the filling with regard to flood drainage that might affect existing developments upstream or upslope from the site.

20 Paragraph 4.26 (p. 27). This simply states that filling would subject site to "significant settlement," but does not mention differential aspects of such settlement or consequences of it on structures. No mention is made of the long-term continuation of such settlement (more than 100 years for the thick bay mud areas).

21 Paragraph 4.29 (p. 28). The potentially serious consequences of information given in the last two sentences of this paragraph are not even implied.

22 Paragraph 4.31 (p. 28). In the light of extensive structural damage on recent fill developments in Corte Madera, Larkspur, and elsewhere, the last sentence of this paragraph is wishful thinking.

23 Paragraph 5.00 (p. 35). Various probable destructive effects of very long-term settlement and of differential settlement are not listed under this heading: "Probable Adverse Environmental Effects Which Cannot be Avoided".

24 Paragraph 7.00 (p. 39). You should list possible (probable, in light of many existing fills) long-term degeneration of structures, streets, etc., and possible future flooding resulting from long-term settlement.

Transportation Concerns

25 We believe statements on Transportation Impact, Section 4.61 (p. 34), as it applied to our current Bellam Boulevard widening project, are incorrect.

Our project is not intended to provide for the increased traffic generated by the subject development. The environmental study for our project stated in part:

"The effect of the improvements will be to improve the traffic circulation on Bellam Boulevard. The additional lanes provided

Colonel H. A. Flitzheim, Jr.
Page 6

will reduce the conflicts for traffic access to the existing development and will provide storage capacity at the signalized intersections to improve traffic flow. Additionally, emergency service access and surveillance will be improved.

"This project is not expected to have a growth inducing impact. The purpose of this construction is to alleviate existing traffic congestion.

"The construction of this project would improve the traffic operation of the roadway accommodating the existing traffic volumes at a higher level of service, estimated to be about Service Level C."

26 It is our opinion that Appendix B, Section VI-1, Transportation and Traffic Conditions of the Statement, p. 13, 14, Mitigation Measures, should be revised to eliminate reference to our proposed project, as our project is not intended to serve future development easterly of Route 17.

27 It is our opinion that the DEIS does not provide a valid analysis of existing plus project-generated peak hour traffic at the Bellman Boulevard-Route 17 ramp intersections, which would show the extent of the impact.

28 On page VI-1-12, Appendix B, Table 1-2 lists the total existing and project-generated peak hour traffic entering the major street intersections, including the Route 17 interchange, affected by the project. The peak hour volumes in the Table do not appear to take into account vehicle conflicts caused by the intersection of through and turning movements. In our opinion, consideration of conflicts as well as volumes gives a much better picture of operating conditions at intersections.

29 Other mitigation measures to alleviate the transportation problems associated with the proposed development are required and in our opinion should be addressed in the statement, i.e., increased capacity and/or additional access to Routes 17 and 101 and expansion of alternatives to Francisco Boulevard west of Bellman Boulevard, etc.

30 This DEIS appears to attempt to indicate the cumulative effects of individual proposals in this area, as indicated on page 23. Caltrans, in reviewing several of these proposals, has repeatedly asked for an adequate analysis of the impacts on the drainage system. In particular, drainage from Route 17 and the area westerly of it originally had open access to the Bay. Subsequently the Bay has been filled off, and fills have been placed easterly of Route 17 and in areas westerly of Route 17 lower than MHW. We are still concerned that the cumulative effect of these past actions, the presently proposed fills, and future fills could result in exposure of Route 17 to flooding. It is our opinion that this risk, and the adequacy of measures to mitigate it, in the light of such cumulative effects, should be addressed in the statement.

Colonel H. A. Flitzheim, Jr.
Page 7


More detailed information relative to our concerns for drainage adequacy may be obtained by contacting Mr. Peter Jansen, District Hydraulics Engineer, Caltrans, District 4, 150 Oak Street, San Francisco; telephone (415) 557-2491.

31 On Plate 2, the Approximate Application Locations are indicated. Several appear to be adjacent to State Route 17. It is requested that DEBERY CONSULT be advised that a state highway encroachment permit must be obtained before any work may be done on the state highway right of way. Application for a permit should be made to Highway Maintenance Superintendent, P. O. Box 42006, San Francisco, CA 94142; telephone (415) 557-1224.

Thank you for the opportunity to review and comment.

Sincerely,

CLAIRE T. DEBERIX
Secretary for Resources

By  Frank Goodman
Assistant to the Secretary
Projects Coordinator

cc: Director of Management Systems
State Clearinghouse
Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814
SCR No. 77031404



BAY AREA AIR POLLUTION CONTROL DISTRICT

May 5, 1977

ALAMEDA COUNTY
Fred J. Cooper
Charles S. Sandoz
James T. Smith

CONTRA COSTA COUNTY

James P. Ames
Eugene L. Lane
Shirley C. Smith

MARIN COUNTY

Shirley C. Smith

SAN FRANCISCO COUNTY

Shirley C. Smith

SAN MATEO COUNTY

Shirley C. Smith

SAN JOAQUIN COUNTY

Shirley C. Smith

SAN BENITO COUNTY

Shirley C. Smith

SAN DIEGO COUNTY

Shirley C. Smith

SAN LUIS OBISPO COUNTY

Shirley C. Smith

SAN CARLOS COUNTY

Shirley C. Smith

SAN JOSE COUNTY

Shirley C. Smith

SAN RAFAEL COUNTY

Shirley C. Smith

SAN PABLO COUNTY

Shirley C. Smith

SAN GABRIEL COUNTY

Shirley C. Smith

SAN JUAN COUNTY

Shirley C. Smith

SAN LUIS COUNTY

Shirley C. Smith

SAN MIGUEL COUNTY

Shirley C. Smith

SAN VICENTE COUNTY

Shirley C. Smith

SAN FELIX COUNTY

Shirley C. Smith

SAN ANTONIO COUNTY

Shirley C. Smith

SAN PEDRO COUNTY

Shirley C. Smith

SAN CARLOS COUNTY

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SAN JUAN COUNTY

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SAN JUAN COUNTY

Shirley C. Smith

SAN LUIS COUNTY

Shirley C. Smith

SAN MIGUEL COUNTY

Shirley C. Smith

SAN VICENTE COUNTY

Shirley C. Smith

District Engineer
U.S. Army Engineer District
San Francisco
211 Main Street
San Francisco, California 94105

Re: Comments on Draft Environmental Statement (DES):
San Rafael Baylands Development

Dear Sirs/Ms.:

We have reviewed the above-referenced document and submit the following comments for your consideration.

Section 4.34, "Impact on Air Quality" (p. 28) is too cursory and uninformative. It does not adequately indicate the magnitude of potential air pollution impacts, and fails to direct the reviewer to appropriate appendices where this information could be found.

The DES is confusing regarding the relationship of this document to the EIR and Marina air quality analysis which are included as appendices. It appears that a number of inter-related overlapping projects will have cumulative impacts, including the "Spinnaker Point" project, the East San Rafael Baylands Redevelopment project, and a 600-berth marina. The relationship between these projects and the action covered in the DES should be more clearly explained.

With regard to air quality, it is not sufficient merely to include separate project air quality analyses as appendices, or to refer to other environmental documents' consideration of air quality impacts. This environmental statement should provide a quantitative air quality analysis which considers the cumulative impacts of the proposed action and all related projects and actions.

Please address any questions concerning these comments to Ralph Mead, Senior Planner, Technical Services Division.

Sincerely yours,

Milton Feldstein

Milton Feldstein
Deputy Air Pollution Control Officer

MF:8
cc: Don McElfresh
ARB

E-35

Document E-8

939 ELLIS STREET • SAN FRANCISCO, CALIFORNIA 94109 • (415) 771-6000

RESPONSES TO COMMENTS BY BAY AREA AIR POLLUTION CONTROL DISTRICT

1. Section VI-D of Appendix B has some cumulative impacts as well as tables for expected air quality impacts.
2. The Marina project application has been withdrawn and the Marina air quality analysis has been deleted. The air quality analysis for East San Rafael included in Appendix B, Section VI-D considers proposed land uses for the area. (The analysis has not been revised to reflect the withdrawal of the Marina Project.)
3. This Final ES is based upon development proposals as presented in the Redevelopment Agency Plan and the Policy Statement. This ES contains impacts from fill and development in East San Rafael including those parcels determined to be within the Corps jurisdiction as well as areas that have been disclaimed.
4. Appendix B, Section VI-D-9 gives air quality impacts from construction and resulting development. However, this analysis has not been revised to reflect the withdrawal of the Marina project.

E-36



MARIN MUNICIPAL WATER DISTRICT

April 20, 1977
File 090.3.9

Colonel H. A. Flertzheim, Jr.
Department of the Army
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, CA 94105

Re: Draft Environmental Impact Statement - East
San Rafael Baylands Development Regulatory
Permit Applications

Dear Colonel Flertzheim:

The East San Rafael Baylands Draft EIS may be somewhat misleading in its statements about water.

1 The ballot measure mentioned in "Paragraph 4.46" was for the Sausalito Reservoir, with a net safe yield of 5,000 acre feet. That project was approved by the voters in November 1976, and is under construction. The increased price of water in Marin Municipal Water District is not related to that project, but rather to increased costs for providing water during the impending drought. It is our intent when normal rainfalls return to reduce our water rates.

2 New development within the District will likely be required to install low flow plumbing fixtures and efficient irrigation systems. Drought-tolerant landscaping is also usually required in areas outside our reclaimed water use areas.

3 Our net safe yield calculations require revision as a result of this most severe drought in history. As a result, we cannot determine when the existing moratorium on connections will be lifted.

We appreciate the opportunity to review this report, and hope this information will be useful to you. If you need additional information, please contact Jo Duthie, our Environmental Services Coordinator.

Sincerely,


B. Dietrich Stroeh
General Manager

Document E-9

E-37

JD:ho

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

RESPONSES TO COMMENTS BY MARIN MUNICIPAL WATER DISTRICT

1. Reference to the ballot measure and water cost has been deleted.
2. This information has been added to paragraph 4.35
3. Noted.

E-38



400 NORTH AVE SAN RAFAEL, CALIF 94801/PHONE (415) 406-1702

MANAGER
C. PAUL BETTINI
COMMUNITY DEVELOPMENT
AND PLANNING
JAMES A. BARNES
JAMES A. BARNES
AND S. BARNES
CITY MANAGER
WILLIAM J. BARNES

Col. H. A. Flertzhelm, Jr.
District Engineer
U.S. Army Corps of Engineers
211 Main Street
San Francisco, California 94105

Re: East San Rafael Baylands Development Draft
Environmental Statement

Dear Col. Flertzhelm:

City staff review of the Environmental Statement indicates that the following sections of the text should be clarified to reflect the following:

1. Section 1.18a - The rezoning of the residential portion of Spinnaker Point has been approved. The master plan for the property includes a total of 225 residential units.
2. Section 1.19 - The fringe retail area is not within the jurisdiction of the Corps. A discussion of the impacts relating to this use should properly be referred to the East San Rafael Redevelopment Plan (ESRRP) EIR, Appendix B of the Environmental Statement.
3. Section 1.20 - The ESRRP is a specific plan for the "Business and Industrial" land use designation of the San Rafael General Plan.
4. Section 1.28:
 - b. - The Seastrand South site (Purdy property) has been purchased by the City of San Rafael and will be utilized as a neighborhood park. No residential development will be permitted. All statements throughout the Environmental Statement text relating to the use of this site for residential development should be corrected.
 - c. - The East San Rafael Redevelopment Plan indicates that the natural marsh located on the Tiscornia property north of the Marina site will be retained.
 - d. - A 100 foot wide band of open space landward of and adjacent to the bay shore is included in the East San Rafael Redevelopment Plan.

RESPONSES TO COMMENTS BY THE CITY OF SAN RAFAEL

1. This has been corrected in paragraph 1.16.
2. This is included in paragraph 1.17.
3. This is noted. Paragraph 1.18 has been revised accordingly.
4. Noted. Mitigation measures are discussed in paragraph 1.24ff.
5. Noted and revised.

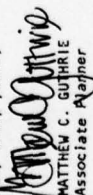
May 10, 1977

e. - The East San Rafael Redevelopment Plan requires retention of the visual backdrop provided by the San Quentin ridge as permanent open space. /

5. Section 2.01g - This disposal site is no longer planned for residential use. /

Section 4.00 of the Environmental Statement summarizes potential impacts of all Corps fill permits applied for in the East San Rafael area. Specifically, impacts relating to the requested permits for the San Rafael Marina are summarized in Section 4.01f. City staff agrees that increases in each of the subject areas will occur; however, the ES does not substantiate whether these impacts are significant. To determine if an impact is significant, standards must be set with which the projected impacts can be compared to. Public response to the Draft ES will, most likely, indicate which impacts are significant and what factors were considered in determining the significance of a particular impact. Once public response has been received, the City would like to receive all copies of these responses so that we may aid the Corps in preparing the Final ES and determining the significant impacts of the ESRRP Baylands Development.

Very truly yours,


MATTHEW C. GUTHRIE
Associate Manager

MCG/fv

E-41

-2



Marin Audubon Society Box 441 Tiburon, California 94920

April 13, 1977

H. A. Flertzheim, Jr.
District Engineer
U. S. Army Engineer District, San Francisco
211 Main Street
San Francisco, California 94105

Re: Draft Environmental Statement
East San Rafael Baylands Development

Dear Colonel Flertzheim:

Thank you for the opportunity to comment on the EIS for East San Rafael Baylands Development Regulatory Permit Applications. It is indeed true that the cumulative effects of the many projects proposed for this area would result in major changes to the existing environment. This society is particularly concerned about the loss of wildlife habitat there, as the filling and construction of the last few years have resulted already in a vastly reduced habitat for water-related wildlife. Further reductions will have an even more pronounced effect on this extremely rich habitat.

Our members have enjoyed watching the birdlife along the San Rafael Bayfront for many years due to the great variety and numbers of birds here, and have provided our Bayfront Committee with field notes and listings of observations from this area. As conditions are different in the various areas along the bayfront, the wildlife differs. We would in general like to see this EIS revised to describe each area more specifically. Our comments regarding particular sections of the Draft EIS follow.

ENVIRONMENTAL SETTING WITHOUT THE PROJECT

2.03 (p. 8) The mudflats are of much importance for birdlife, as well as for invertebrates and for fishes. We would like to see an addition to this paragraph discussing value for both migratory and non-migratory species. These mudflats are, for instance, major feeding grounds for three species of herons which nest on West Marin Island, just offshore. This is a major heronry for San Francisco Bay, with several hundred nests of snowy egrets, black-crowned night herons, and Great egrets.

2.04 (p. 9) There are 3, not 2 saltmarshes remaining in the project area. The third saltmarsh is located in the Lagoon Park area between the Bellam Blvd. dike, the sanitation plant, and the city's drainage pond.

A Branch of National Audubon Society

E-42

Document E-11

1. Paragraph 2.09 has been expanded to describe the area more completely.
2. The information has been added to paragraph 2.02.
3. This information is in paragraph 2.09(1).
4. Paragraph 2.06 has been changed to include this information.
5. The list is included in this ES as Appendix C. Paragraph 2.06 has been changed to reflect this information.
6. Paragraph 2.10 now includes information on endangered species supplied by California Department of Fish and Game.
7. These three ponds are noted in paragraph 2.14.
8. The paragraph has been changed. Restoration of tidal action is discussed in Section 6.
9. This information is included in paragraph 4.04.
10. This information is included in paragraph 4.04.
11. This information is included in paragraph 4.04.
12. This information is included in paragraph 4.04.
13. Comment acknowledged. This has been deleted from Section 6.
14. Noted and revised.
15. This ES is based upon the Final June 1977 EIR and the latest Policy Statement, June 1977.

Handwritten signature

Marin Audubon Society Box 441 Tiburon, California 94920
Draft EIS San Rafael Baylands

2

- 4 2.07 (p. 9) We would like to see this paragraph revised to be more specific. These brackish ponds are of great value to wildlife for feeding, for shelter from tides and winds and storms, and for nesting. There are not 3, but at least 6 ponds in this area which contain water year around: The Soinnaker Lagoon; the city-owned drainage pond (which is surrounded by the "Lagoon Park" lagoon which dries up in summer); the MWD (McLellan) pond; one Haskell Norman pond; one Haskell Norman-Ghilotti pond; one or two city-owned Cecchetti ponds. These ponds, and the open spaces around them, are used not only by waterfowl and wading birds as mentioned, but also by hawks, white-tailed kites, and two species of owls.
- 5 2.08 (P. 9) The chain of marshy areas and ponds, both the seasonally-wet and the year-around-wet ones, are indeed rich in terms of bird diversity. To update your listing, 128 species of birds have been observed here between 1968 and 1977. A revised list is attached, which is a composite list from a number of observers. We can furnish specific lists on request. For instance, our lists show 106 species for the Soinnaker Lagoon area; 94 species in the Lagoon Park area; and 76 species in the MWD, Norman, and Ghilotti ponds area.
- 6 These wet areas are also rich in terms of great numbers of birds of specific species. It is not uncommon in the springtime to count over 100 avocets feeding at one time in the Lagoon Park lagoon, or 30 snowy egrets in the same lagoon area. Over 900 white egrets have been counted feeding at one time along the bayfront edges.
- 6 2.10 (p. 9) Our members have not observed any endangered species here, though we expect there might be California clapper rails in the three saltmarshes. Fourteen species have been recorded here, however, which appear on the Blue List of American Birds, a list of potentially dangerous population declines. Also sighted here have been several species which are extremely rare for central California: the little blue heron, the yellow-crowned night heron, the blue-winged teal, and the semipalmated sandpiper.
- 7 2.14 (p. 10) As noted in our comments above (2.07), there are in addition to the 3 drainage ponds, 3 other ponds which do not dry up in summer. They are on the properties of MWD (McLellan), Haskell Norman, and Ghilotti. In addition, the excavated ponding areas along the eastern side of San Quentin landfill dry out only because they are pumped out.

A Branch of National Audubon Society



Marin Audubon Society Box 441 Tiburon, California 94920

Draft EIS San Rafael Baylands

PROBABLE IMPACTS OF THE PROPOSED ACTION ON THE ENVIRONMENT

4-04 (p. 24) We request that this paragraph on the impacts of filling be rewritten. Diking and filling activities have indeed taken their toll of productive habitat, but many areas remain which are restorable to year-around habitat simply by adding tidal flow in the dry season. Some buffering by fencing and/or planting could also help protect uses by wildlife when these areas are surrounded by development.

The low-lying areas with marshes, brackish ponds, and surrounding open spaces were once common in the entire San Rafael basin. Only a few years ago they extended as far as Francisco Boulevard and Highway 101. In the 1870's they extended as far as B Street in downtown San Rafael. As the present ponds are all that remain of the once vast area, it is extremely important that as many as possible of these wet areas of such vital importance to wildlife be preserved.

Loss of these pond areas would undoubtedly result in a major species decline of the large heronry on West Marin Island. These birds formerly also nested on South Marin Island (Murphy's Rock) which was leveled to become part of the levee which now surrounds the proposed project area. These birds cannot nest and bring up young here without nearby feeding grounds, nor can the adult birds survive without feeding grounds. The shallow ponds inside the dikes as well as the mudflats outside the dikes are their feeding area.

Loss of these pond areas would remove nesting habitat from water birds as well as the land birds mentioned. Pied-billed grebes, several kinds of ducks, and probably burrowing owls nest in the pickleweed and other vegetation along these shallow ponds.

Loss of these pond areas would also remove habitat from the vast numbers of migratory birds, both ducks and shorebirds, who migrate along the Pacific Flyway and spend the winter in the San Francisco Bay area. These ponds provide food and also shelter from winter tides and storms.

ALTERNATIVES TO THE PROPOSED ACTION

6.05 (P. 36) We do not believe that access is a problem for making the 21-acre low area of San Quentin landfill useable as open space-recreation. The shoreline levee already provides access to walkers and bicyclers who can view this area from the levee. Many people enjoy watching wildlife as they walk. This low area, dry in sum-

A Branch of National Audubon Society

E-45



Marin Audubon Society Box 441 Tiburon, California 94920

Draft EIS San Rafael Baylands

mer only because it is pumped dry, would again grow vegetation around its edges if it were wet, and would provide another bay-front pond much used by wildlife as are the neighboring ponds. It would not have to be filled to a saltmarsh elevation to be productive. As a pond, or series of ponds, they would be used by wildlife, and as a secondary effect create a pleasant buffer for people between the shoreline park-levee and the landfill site-future industry.

LONG-TERM PRODUCTIVITY

7.03 (p.39) There is already an extensive area of pickleweed marsh here in the drainage pond area (the proposed Lagoon Park.) This third marsh could also be easily improved by the addition of summer water. The water could be either tidal flow from the Bay, or treated effluent from the adjoining sanitation plant.

APPENDIX B

We were disturbed to see that the Williams and Moline EIR for East San Rafael has been included in its draft form without corrections, and has been referred to in this EIR. This draft form is not only outdated but also inaccurate. Many changes have been made to the redevelopment plan since the writing of the draft EIR. It was only one of three EIR's for the San Rafael Bayfront, and none of these took an overview of the entire area. The biology chapters of all three EIR's were particularly inadequate in not describing the richness and diversity of the birdlife along the bayfront. We enclose the comments we made to San Rafael on this draft EIR.

If we can supply additional information, or in any other way be of help, please do not hesitate to let us know.

Sincerely yours,

Jean Starkweather
President

Encl: East San Rafael EIR comments - withdrawn but available at the Corps Updated Bird Check List - now in Appendix C

A Branch of National Audubon Society

E-46

BAY LAND AREA STUDY TEAM
WEST BAY - Box 602
BRISBANE, Calif. 94005

9 March 1977

Col. HENRY A. FLERTZHEIM, Jr. USA
394 - 22 - 3333 (2 June 1953)
SF District CORPS OF ENGINEERS
211 Main Street SAN FRANCISCO 94105
Attn. SPNED-E Redevelopment Clerk

Dear Colonel FLERTZHEIM--

re East San Rafael Baylands
Redevelopment DEIS dated 3 March 1977

These documents in which you gather up and approve 8 permit applications at a swoop are the spiritual sisters (administrative) of EDC's special area plans to alienate whole waterfronts within 5 miles of the CESP line in the name of community development (1971 amendments), port planning, regional planning, wildlife management, wastewater management, you name it. On page A34 above it shows the State Lands Division made a sovereign rights determination on 2 July 1976. This is other language for an end to navigation & fishery on lands of that character in the City of San Rafael on 9 September 1850.

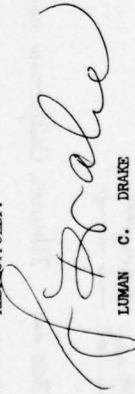
The subject saltmarsh and tide lands commissioners sales to 9 feet below low tide of the above DEIS are within one 1/2 miles of San Quentin and within 5 miles of the CESP line in SF Bay. They were all unanimously "freed" of the public easement for navigation on December 9, 1971 by Calif. Chief Justice DONALD R. WRIGHT who cited the 1968 theft of BAY FARM ISLAND for Utah and two old special act sales statutes repealed by the Legislature in 1876 as his "authority" for doing so. To our knowledge the 34th Governor of California and his Attorney General haven't lifted a finger to abort this magnificent 18,800 acre swindle of downtown waterfronts for sinking Lealle Salt ponds under 1968 Resources Code Sec. 6307 to be financed by Uncle Sam under PL 92-330 by 30 June of this year.

Colonel Flertzhelm, on 22 February 1977 we asked President Carter to ask US Attorney General Bell to ENFORCE a 29 October 1883 decision of US Surveyor General (for California) W. H. Brown against the Chief of Engineers by revoking your headquarters notorious 1965 Permit 33 on a thousand acres of BAY FARM ISLAND tidelands in Alameda. On 25 September 1974 on behalf of President Ford, Major General G. A. REEH told us to get in touch with you on Bay Farm Island. We got the message and here we are. We ask you to sit tight in San Rafael until you see what happens in Alameda. In Brisbane yesterday we lost an election against redevelopment of our waterfront a la San Rafael with the same cast of consultants, see enclosed.

The conservationists tell us the Bay has been saved. We ask for whom.

cc James Earl Carter
Griffin Bell
Leo J. Ryan
John L. Burton
Fortney H. Stark Jr.
James L. Browning Jr.
DAEN-CMO-N 65-33
S. I. Hayakawa
James F. Trout

RESPECTFULLY:


LUMAN C. DRAKE

E-47

Document E-12

RESPONSES TO COMMENTS BY BAY LAND AREA STUDY TEAM

1. This letter does not comment on the Draft ES adequacy and therefore no response is necessary.

E-48

APPENDIX F
COMMENTS AND RESPONSES TO
SAN QUENTIN LANDFILL
DRAFT ENVIRONMENTAL STATEMENT

APPENDIX F

COMMENTS AND RESPONSES TO DRAFT ENVIRONMENTAL STATEMENT
ON SAN QUENTIN LANDFILL

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The comments to the San Quentin Landfill Draft Environmental Statement issued in November 1974, may not be applicable to the current proposed development due to changes in the development plans of the surrounding areas.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
100 CALIFORNIA STREET
SAN FRANCISCO, CALIFORNIA 94111

JAN 17 1975

H. A. Flertzheim, Jr.
District Engineer
San Francisco District
Corps of Engineers
140 McAllister
San Francisco CA 94102

Dear Colonel Flertzheim:

The Environmental Protection Agency has received and reviewed the draft environmental statement for the San Quentin Landfill, Regulatory Permit Application, San Rafael, California.

Within our statutory authority, EPA finds that the issuance of the proposed permit to fill this area will not result in violations of applicable water quality standards or national ambient air quality standards. However, consistent with the EPA Administrator's Decision Statement No. 4 "EPA Policy to Protect the Nation's Wetlands" (copy attached), I suggest the environmental statement be expanded to include consideration of additional alternatives. For example, consideration could be given to partial filling of this area with deeding of extra land to open space/wildlife habitat areas.

EPA's comments on the draft environmental statement have been classified as Category LO-2. Definitions of the categories are provided on the enclosure. The classification and the date of EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act. Our procedure is to categorize our comments on both the environmental consequences of the proposed action and the adequacy of the environmental statement.

F-1

Document F-1

-2-

EPA appreciates the opportunity to comment on this draft environmental statement and requests one copy of the final environmental statement when available.

Sincerely,

Paul De Falco, Jr.
Regional Administrator

Enclosures

cc: Council on Environmental Quality



UNITED STATES
DEPARTMENT OF THE INTERIOR

OFFICE OF THE SECRETARY
PACIFIC SOUTHWEST REGION
BOX 36098 - 450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102
(415) 556-8200
January 21, 1975

ER 74-1487

Colonel H. A. Flertzheim, Jr.
District Engineer
San Francisco District
Corps of Engineers
100 McAllister Street
San Francisco, CA 94102

Dear Colonel Flertzheim:

The Department of the Interior has reviewed the draft environmental statement for San Quentin Landfill, San Rafael, Marin County, California. For your convenience, our response is separated into general and specific comments.

General Comments

Although the area's wildlife values are presently moderate, its potential biological productivity is substantial. The statement says that rain ponds in the area have high wildlife usage in terms of species diversity. Consequently, it should be acknowledged that the project habitat, if left undeveloped, would continue to retain this value and the area would be of increased biological productivity if tidal action were restored.

1

2

The statement discusses only two project alternatives. However, ecological restoration of the unfilled portion of the area is also possible through the Corps administration of the permit program. The statement should recognize that the applicant could alter the project proposal and curb environmental impact. For example, only a portion of the project area could be filled and the remainder returned to tidal action, left as open space, or incorporated into the flood basin. Another possible alternative is that for any fill accomplished, an area possessing equal biological value could be acquired and restored. We suggest that the final statement discuss ways to reduce project impact on natural resources.

Specific Comments

Plate 3 describes the outer bayside edge of proposed fill as "100 ft. back of high water mark." This statement is misleading since most of the fill area is presently below the level of high water. If the

F-2

F-4

Document F-2

RESPONSES TO COMMENTS BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

1. Alternatives to the proposed project are discussed in Section 6.

RESPONSES TO COMMENTS BY U. S. DEPARTMENT OF THE INTERIOR

1. This information is included in paragraph 6.05.
2. Possible alternatives to the development plan are discussed Section 6.
3. Corps jurisdiction includes all new work performed in diked areas below the former Mean High Water (MHW) level. These areas are now indicated on Plate 7.
4. The San Rafael General Plan of 1974 has been superseded by the "Urban Design and Development Policy Statement for East San Rafael" (Appendix D) which designates the San Quentin Landfill area for commercial and industrial use. The Policy Statement also provides for a 100 foot wide linear park to be established along the bayshore line of East San Rafael which does not conflict with the development plans for San Quentin Landfill.
5. According to the San Rafael Policy Statement, the shoreline park would extend from the southern boundary of the City to San Rafael Creek. Pedestrian access to the park will be provided at three points.
6. There is no new interchange for State Highway 17 planned in the area. Reference to such an interchange has been deleted.
7. Access to the area would be required before any proposed development is approved by the City.

We appreciate the opportunity to review and comment on the draft statement.

Cordially,

Webster Otis
Special Assistant
to the Secretary

cc: OEPR, w/c incoming comments
Regional Director, Fish & Wildlife Service, Portland
Regional Director, Bureau of Outdoor Recreation, San Francisco
Regional Director, National Park Service, San Francisco
Director, U.S. Geological Survey, Reston
Director, Bureau of Mines, Washington, D.C.
Regional Director, Bureau of Reclamation, Sacramento

F-5

F-7

- 2 -

- 3 innermost of landward edge of the proposed fill area subject to Corps jurisdiction corresponds to the high water level, it would be helpful to so indicate on Plate 3.

Also, the maps on Plates 1, 2, 4, and 5 do not have scales and are difficult to relate to the large-scale map (Plate 3). A comparison of Plates 3 and 4 indicates that the proposed fill within Corps jurisdiction falls largely within the zone the General Plan designates for water-oriented public recreation and open space ("water oriented review areas" on Plate 4).

- 4 The draft states that "the purpose is to prevent flooding . . . so that the land can then be used in accordance with the City of San Rafael General Plan" (p. A-2, last paragraph). However, only a plan for residential use of the fill portion nearest the water is mentioned (p. A-1, paragraph 3). The Project Description in the draft statement makes no mention of residential use, but instead refers to "development of light industry" (p. 1, paragraph 1.02). Contrary to either residential or light industrial use, a comparison of Plates 3 and 4 indicates that the General Plan calls for recreational or open-space uses in most of the area under consideration. This apparent inconsistency is confirmed by the statement that "the General Plan does not specify any residential land uses on the Bay lands in the vicinity of the San Quentin Disposal Company" (p. 20, paragraph 4.30).

Apparently the project includes a shoreline strip of water-oriented recreational or open-space uses from 500 to 600 feet wide. This strip would encompass at least two-thirds of three-fourths of the proposed fill area under Corps jurisdiction. It is stated, in apparent reference to uses of the proposed 21-acre fill area, that "the current plans designate this area as industrial with an open-space strip along the shoreline" (p. 22, paragraph 6.02). We suggest that the portion of the fill area intended to be reserved for open-space or recreational uses under the General Plan, be defined as accurately as possible.

Page 14, section 3.10 of the draft refers to City of San Rafael's General Plan, particularly the proposed "water-oriented review area". This recreational development will probably attract city residents and others to the area. We suggest that the statement discuss the fact that such recreational use would be contingent on area accessibility to potential users.

- 5 The present road network is highly congested at times and the addition of new parks, businesses, and/or residences would intensify this congestion. The statement does refer to a new interchange from State Highway 17 which would add a fourth access point into the area (page 11, section 2.51). However, this interchange will require approval of the California Highway Commission. The statement should emphasize the importance of access to the area and define more finitely the environmental impact if access is not provided.

6
7

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F-8

Document F-3

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION - REGION NINE

ARIZONA
CALIFORNIA
HAWAII
NEVADA

450 Golden Gate Avenue, Box 36096, San Francisco, Calif. 94102

January 24, 1975

IN REPLY, REFER TO

9ED

Colonel H. A. Flertzheim, Jr.
San Francisco District Engineer
U.S. Army Corps of Engineers
100 McAllister Street
San Francisco, California 94102

Dear Colonel Flertzheim:

We have reviewed the Draft Environmental Impact Statement for the San Quentin Landfill Regulatory Permit Application, Marin County, California, and offer the following comment for your consideration.

The Draft Statement does not provide adequate information to evaluate the effect of the proposal on traffic and circulation on local roads and streets, especially State Route 17 (Federal-aid Primary Route 33) and the interchanges at Bellam and Francisco Boulevards. The EIS should include the traffic volumes the proposal is expected to generate immediately after completion and in the future. Also, the timetable for the road improvements mentioned in the EIS should be given.

We appreciate this opportunity to review the subject Draft EIS and would like to receive a copy of the Final Statement when it becomes available.

Sincerely yours,

For *F. E. Hawley*
F. E. Hawley
Regional Administrator

RESPONSES TO COMMENTS BY UNITED STATES DEPARTMENT OF TRANSPORTATION

1. This information is included in paragraphs 4.39ff.
2. The California Department of Transportation has plans for upgrading Bellam Boulevard in early 1979.

RESPONSES TO COMMENTS BY THE UNITED STATES DEPARTMENT OF COMMERCE

1. Response: The proposed project does not appear to be in any of the bench mark areas listed in the Department of Commerce letter.

F-9

F-11



UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230

January 14, 1975

Colonel H. A. Flertzheim, Jr.
San Francisco District,
Corps of Engineers
Department of the Army
100 McAllister Street
San Francisco, California 94102

Dear Colonel Flertzheim:

The draft environmental impact statement for San Quentin Landfill Regulatory Permit Application San Rafael, Marin County, California, which accompanied your letter of November 29, 1974, has been received by the Department of Commerce for review and comment.

The statement has been reviewed and the following comments are offered for your consideration.

1. A number of tidal bench marks are located in the Point San Quentin area. These are described in the attached listing. If there is any planned activity which will disturb or destroy these marks, National Ocean Survey (NOS) requires not less than 90 days notification in advance of such activity in order to plan for their relocation. NOS recommends that funding for this project include the cost of any relocation required for NOS monuments and marks.

There are no geodetic control survey monuments in the area involved in this proposed project.

Tidal data given on pages 4 and 5 are confirmed according to NOS records and documents.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving a copy of the final statement.

Sincerely,

Sidney R. Galler
Sidney R. Galler

Deputy Assistant Secretary
for Environmental Affairs

Document F-4

Attachment

F-10

CALIFORNIA - III - 81

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

TIDAL BENCH MARKS

Point San Quentin and Vicinity
San Francisco Bay
Lat. 37° 56.6'; Long 122° 28.4'

BENCH MARK 6 (1936) is a standard disk, stamped "6 1936", set in top of southeast corner of concrete foundation for two massive concrete posts near south entrance of post office and about 8 feet south of southeast corner of the building. Elevation: 34.86 feet above mean lower low water.

BENCH MARK 9 (1936) is a standard disk, stamped "9 1936", set in top of north corner of northeast headwall of concrete box culvert No. A-1.13, on northeast side of Richmond Ferry Highway (Marin County Road No. 69). Bench mark is 22½ feet northeast of center line of highway, and about 1½ feet above highway. Elevation: 7.89 feet above mean lower low water.

BENCH MARK 10 (1936) is a standard disk, stamped "10 1936", set in top of southwest side of concrete foundation of southwest leg of steel power line tower No. 9/54 on north side of Richmond Ferry Highway (Marine County Road No. 69), 35 feet northeast of center line of highway, 34 feet north of north corner of northeast concrete inlet of 18-inch corrugated metal pipe culvert No. P79+50, and about level with highway. Elevation: 5.53 feet above mean lower low water.

BENCH MARK 11 (1936) is a standard disk, stamped "11 1936", set in top step of east wind wall of concrete box culvert No. A-2.23 at drainage canal in San Rafael. It is 120 feet southeast across the boulevard from southeast corner of building at 807 Francisco Boulevard, 105 feet northeast of center line of north bound traffic lane of U.S. Highway 101, 40 feet south of center line of Boulevard and 16½ feet south of wire fence. Elevation: 6.41 feet above mean lower low water.

F-12

BENCH MARK 13 (1949) is a standard disk, stamped "NO 13 1949", set in top of southwest corner of 11-foot by 14 foot concrete junction box for cable crossing of Pacific Telephone and Telegraph Company. Box is on east side of highway leading to San Quentin, about midway between San Quentin pumping station No. 2 and San Rafael Maintenance Yard. It is $\frac{1}{2}$ mile northeast along Main Street from post office at San Quentin, 48 feet east of center line of Main Street, 30 feet south of south fence of maintenance yard and 26 $\frac{1}{2}$ feet west of retaining wall on waters edge and about level with street. Elevation: 19.51 feet above mean lower low water.

BENCH MARK 17 (1952) is a standard disk, stamped "17 1951", set in top of west corner of pump house concrete deck at southeast end of northeast corner of a retaining wall at 595 Francisco Boulevard in San Rafael. It is 261 feet northwest of center line of Harbor Street, 27 feet northeast of center line of Francisco Boulevard and about 2 $\frac{1}{2}$ feet above the sidewalk. Elevation: 9.67 feet above mean lower low water.

BENCH MARK 18 (1958) is a standard disk, stamped "No 18 1958", set in top and near northeast end of a 2 $\frac{1}{2}$ foot concrete culvert about 4 $\frac{1}{2}$ feet south of light pole No. D 181. It is 52 $\frac{1}{2}$ feet southwest of center line of southwest lane of State Highway 69, 30 $\frac{1}{2}$ feet southwest of sign A1 205490 and 11 feet west of west corner of concrete pier under west end of a highway overpass. Elevation: 7.86 feet above mean lower low water.

Mean lower low water at Point San Quentin, San Francisco Bay is based on 12 months of records, October 1936 - September 1937, reduced to mean values. Elevations of other tide planes referred to this datum are as follows.

	Feet
Mean higher high water	5.70
Mean high water	5.10
Mean tide level	3.10
Mean low water	1.10
Mean lower low water	0.00

The estimated highest water level to the nearest half foot is 8 $\frac{1}{2}$ feet above mean lower low water. The estimated lowest water level to the nearest half foot is 2 $\frac{1}{2}$ feet below mean lower low water.

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

REGIONAL OFFICE
40 TULSON STREET
SAN FRANCISCO, CALIFORNIA 94102

Office of Environmental Affairs
January 10, 1975

J. A. Flertschheim, Jr.
Colonel, C.E.
District Engineer
Department of the Army
S.F. District Corps of Engineers
100 McAllister Street
San Francisco, CA 94102

RE: Draft EIS
San Quentin Landfill
Permit Application

Dear Sir:

The above Draft Environmental Impact Statement has been reviewed in accordance with the interim procedures of the Department of Health, Education and Welfare as required by Section 102 (2) (c) of the National Environmental Policy Act, PL 91-190.

The material provided appears to describe adequately the impacts of the proposed action as well as the alternatives that were presented. The major concerns of this department are related to possible impacts upon the health of the population, services to that population and changes in the characteristics of the population which could require a different level or extent of services. Our review does not identify problems related to these specific concerns.

The opportunity to review this statement was appreciated.

Sincerely,

James H. Knochenhauer
James H. Knochenhauer
Regional Environmental Officer

cc: Ms. F. Hayes
Mr. W. Muir

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Document F-5

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

P. O. Box 1019, Davis, CA 95616

January 6, 1975

Colonel R. A. Flertschheim, Jr.
District Engineer
Department of the Army
San Francisco District
Corps of Engineers
100 McAllister Street
San Francisco, California 94102

Dear Colonel Flertschheim:

This acknowledges receipt of the draft environmental impact statement "San Quentin Landfill Regulatory Permit Application, San Rafael, Marin County California" for review and comment by the Soil Conservation Service.

Our review indicates that applicable points of consideration in the statement within the realm of Soil Conservation Service responsibility and expertise have received adequate attention. The project will not affect programs of Soil Conservation Service in Marin County.

We appreciate the opportunity provided for review and comment.

Sincerely,

O. H. Stone
O. H. Stone
State Conservationist

cc: Ralph Bishop, SCS, Santa Rosa

F-15

Advisory Council
On Historic Preservation
1322 K Street, N.W., Suite 410
Washington, D.C. 20005

Colonel R. A. Flertschheim, Jr.
District Engineer
Corps of Engineers
San Francisco District
U.S. Department of the Army
100 McAllister Street
San Francisco, California 94102

Dear Colonel Flertschheim:

This is in response to your request of November 29, 1974 for comments on the environmental statement for the San Quentin Landfill Regulatory Permit Application, San Rafael, Marin County, California. Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1968, the Advisory Council on Historic Preservation has determined that your draft environmental statement appears adequate regarding our area of expertise and we have no further comment to make at this time.

Sincerely yours,

John D. McDermott
John D. McDermott
Director, Office of Review
and Compliance

Document F-7

This Council is an independent unit of the Executive Branch of the Federal Government charged by the Act of October 15, 1966 to advise the President and Congress on the field of Historic Preservation.

F-16



EDMUND G. BROWN JR.
GOVERNOR

OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO 95814

February 7, 1975

Joe Paxton
100 McAllister Street
San Francisco, CA 94102

SUBJECT: SCR 74121044 - SANITARY LANDFILL

Dear Mr. Paxton:

The above listed project was received in this office and disseminated to various State departments for review. The attached comments were generated by the (1) Department of Fish and Game, (2) State Solid Water Management Board, (3) Department of Transportation, and cleared through the agency secretaries.

1. Department of Fish and Game. For further information regarding this comment, please contact, E.C. Fullerton, 1416 9th Street, Sacramento, 95814, (916) 445-5250.
2. State Solid Water Management Board. For further information regarding this comment, please contact, Albert A. Marino, 1416 9th Street, Room 1154, Sacramento, 95814, (916) 322-1310.
3. Department of Transportation. For further information regarding this comment, please contact, B.C. Bachold, P.O. Box 1366, Rincon Annex, San Francisco, 94119, (415) 557-0410.

The comments are aimed at assuring that the project is coordinated with appropriate State agencies and that the environmental impact of the project is fully evaluated.

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Document F-8

February 7, 1975
Page 2

This letter verifies your compliance with the environmental review requirements under the National Environmental Policy Act and/or the California Environmental Quality Act.

Sincerely,

William G. Kisham
William G. Kisham
Management Systems Officer
State Clearinghouse

WCK/ped

cc: E.C. Fullerton, Fish/Game
Albert A. Marino, SWMB
B.C. Bachold, Transportation
Mary Schell, Library
Waide Egner, ARAG

The Resource Agency

Memorandum

To: Secretary for Resources
1415 State Street
Sacramento, California 95814

Date: January 13, 1975

From: Department of Fish and Game

Subject: Draft Environmental Statement on the San Quentin Landfill in San Rafael, Marin County, SCR 74121044

1 Department of Fish and Game personnel have reviewed the report and found it to be inadequate in its treatment of the wildlife resources. While the report recognizes some of the wildlife values, it does not offer any mitigation plans to compensate for losses of these values.

The 21 acre site is heavily used by wildlife during the winter months when the area becomes a seasonally flooded wetland. Many waterfowl and other water-associated birds depend upon such wetlands around San Francisco Bay for feeding, resting, and shelter areas. In addition to its use by water-associated birds, the site provides a feeding ground for a variety of small mammals and land birds.

Unless adequate mitigation is provided, this area could best preserve the fish and wildlife resources of the San Francisco Bay area if it is retained as an open space. The site could be opened to tidal action as stated in Alternative 6.03 and would serve as a buffer strip between San Rafael Bay and future development on the adjoining 20 acre fill site that is outside the Corps' jurisdiction.

2 The Secretary for Resources' letter of May 16, 1974, to Colonel James Lennie on the subject (FR 74-0-2 and FR 74-0-2a) expressed concern over the probable development of the lands surrounding the project area and its deleterious impact upon wildlife resources.

This report should have addressed itself to this concern, plus the need for a mitigation plan that was also mentioned.

E.C. Fullerton
Director

RECEIVED
JAN 14 1975
Resource Agency of California

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Document F-8

RESPONSE TO COMMENTS BY CALIFORNIA DEPARTMENT OF FISH AND GAME

1. Mitigation measures are discussed in paragraphs 1.24ff.
2. The impacts of development proposals in the project area on wildlife resources are discussed in paragraphs 1.02ff.

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Memorandum

To : Honorable Claire T. Dedrick
Secretary for Resources
1416 - 9th Street, Room 1311
Sacramento, CA 95814

Date : January 16, 1975

January 8, 1975

04-Mrn-17

From : STATE SOLID WASTE MANAGEMENT BOARD

Subject: SCH 74121044 San Quentin Sanitary Landfill, San Rafael - Marin County

The following are our comments on the draft of the subject FIS.

1. The discussion in Section 3.00, RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS, does not include the comprehensive solid waste management plan now being prepared by Marin County. We believe that the disposal of waste generated in this project should be coordinated with the county solid waste management planning agency in order to promote a truly comprehensive approach for the entire county.

Albert A. Marino
Albert A. Marino
Executive Officer

Comments on San Quentin Disposal Company's Proposed Sanitary Landfill on a 21-Acre Site One Mile North of Point San Quentin on San Rafael Bay, Marin County; State Clearinghouse Schedule No. 74121044, Dated December 7, 1974.

The Clearinghouse Schedule was accompanied by a copy of the Draft Environmental Statement - San Quentin Landfill, Regulatory Permit Application, San Rafael - San Quentin Landfill, Regulatory Permit Application, San Rafael, Marin County, California - U. S. Army Engineer District, San Francisco, California - November, 1974, hereinafter referred to as "The Statement".

State Highway Route 17 traverses the area upstream of the landfill site. A drainage system is needed to mitigate the effect of the landfill on drainage conditions in the area upstream of the site. Paragraph 4.10 (Page 16) states that the drainage system and flood control measures (being provided by East San Rafael Drainage Assessment District No. 1) have been designed and constructed in such a manner that existing properties upstream of Route 17 would be protected from flooding. It is our opinion that The Statement should also include an evaluation of the adequacy of the drainage system and flood control measures to protect Route 17 from flooding.

2. Paragraph 2.20 (Page 6) mentions the fact that the State Department of Transportation has not approved the design of the drainage facility. It is suggested that this statement be amplified to indicate that such approval will not be forthcoming in the absence of the following:

- A. Assurance that either the City or the Drainage District will provide adequate operation, maintenance and control of the drainage system being provided by the Drainage District, and
- B. Data that will, upon our analysis, support a conclusion that inadequacy of the drainage system does not pose a 1-in-100-year flood threat to Route 17.

3. Paragraph 4.35 (Page 21) of The Statement mentions "-- an additional interchange for Highway 17 planned for construction in the vicinity of the landfill --". Such an interchange is not planned by the Department of Transportation. Paragraph 2.51 (Page 11) is correct in stating that "-- the consent of the California Highway Commission (necessary) for the development of such an interchange has been neither granted nor requested".

B. C. Bachtold
B. C. BACHTOLD
Deputy District Director
Caltrans, District 4

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Document F-10

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Document F-12

RESPONSES TO COMMENTS BY THE STATE SOLID WASTE MANAGEMENT BOARD

1. The San Quentin Landfill is incorporated in the Solid Waste Management Plan for Marin County. According to that plan, the San Quentin Landfill will continue to serve as a disposal site for Class II Group 1 (non-toxic, nonleachable, nondecomposable solids) material. It is estimated that the disposal site will not be completely filled until 1984.

RESPONSES TO COMMENTS BY CALIFORNIA DEPARTMENT OF TRANSPORTATION

- 1 & 2. The City of San Rafael has formed a drainage district to provide flood control capability for the entire East San Rafael area. The storm drainage facilities were designed on a 100-year storm return frequency. Calculations indicate that the maximum water surface elevation in the drainage channel south of Highway 17, based on the 100-year storm, would be 1.3 feet on USC and CG datum. The elevation of Highway 17 was considered at the time the drainage district was formed, and the features of the district were designed to protect Highway 17 at that elevation. The City of San Rafael maintains that the Highway has settled subsequently. The City is responsible for the continued operation and maintenance of the drainage district.

3. Reference to an additional interchange for Highway 17 has been deleted from the Final ES.



State of California
GOVERNOR'S OFFICE
OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO 95814

February 19, 1975

Joe Paxton
100 McAllister Street
San Francisco, CA 94102

SUBJECT: SCH 74121044 - SANITARY LANDFILL

Dear Mr. Paxton:

The above listed project was received in this office and disseminated to various State departments for review. The attached comment is in addition to the ones you received earlier from this office, in a letter dated February 7, 1975. The comment was generated by the Department of Health, and cleared through the agency secretary.

Department of Health, For further information regarding this comment, please contact, Kenneth Buell, 722 Capitol Mall, Sacramento, 95814, (916) 322-2308.

The comment is aimed at assuring that the project is coordinated with appropriate State agencies and that the environmental impact of the project is fully evaluated.

This letter verifies your compliance with the environmental review requirements under the National Environmental Policy Act and/or the California Environmental Quality Act.

Sincerely,

William G. Kirkham
William G. Kirkham
Management Systems Officer
State Clearinghouse

WGG/ped

cc: Kenneth Buell, Health
Mary Schell, Library
Waide Egner, ARAG
E.C. Fullerton, Fish/Game
Albert A. Martino, SSGWB
D.C. Bachtold, Transportation

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Document F-13

State of California

Department of Health

Memorandum

To: Health and Welfare Agency
Attention: Assistant to the Secretary, Operations
915 Capitol Mall, Room 200
Sacramento, California 95814

Date: January 1, 1975

Subject: U. S. Department of
the Army Environmental
Statement Regarding San
Quentin Landfill Regulatory
Permit Application,
Marin County

From: *Kenneth Buell*
Kenneth Buell, Program Manager
Environmental Health Services Program

We have reviewed the Draft Environmental Statement for a project proposed by the San Quentin Disposal Company of San Rafael, Marin County. The company has applied for a Department of the Army Permit to place approximately 900,000 cubic yards of debris and earthfill on 21 acres of privately owned land located about one mile north of Point San Quentin on San Rafael Bay and behind a levee constructed in 1956. Thus the fill area has already been isolated from the tidal influence of the bay.

The fill would consist of 625,000 cubic yards of Group 3 materials and 275,000 cubic yards of earthfill to elevate it to a height and soil compactness suitable for development of light industry. The project is in conformance with the general plan for the area.

In our opinion, the Draft Environmental Statement adequately discusses the impact of the project on the environment. Since the proposed fill material is inert, we do not believe that the project will have an adverse effect on public health. Consequently, we have no objection to the Department of the Army granting the requested permit.

RECEIVED

Office of Planning &
Research

APPENDIX G
COMMENTS AND RESPONSES TO
SAN QUENTIN LANDFILL
PROPOSED FINAL ENVIRONMENTAL STATEMENT

Appendix G

Comments and Responses to Proposed Final Environmental Statement for San Quentin Landfill

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G-4	Bay Land Area Study Team	G-6

The comments to the San Quentin Landfill Proposed Final Environmental Statement, issued in July 1975, may not be applicable to the current proposed development due to changes in development plans of the surrounding areas.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION - REGION NINE

Two Embarcadero Center, Suite 530, San Francisco, California 94111

ARCHIVE
CALIFORNIA
HISTORIC
NEWARK

IN REPLY, REFER TO
9ED

December 30, 1975

Colonel H. A. Flertzhelm, Jr.
San Francisco District Engineer
U.S. Army Corps of Engineers
100 McAllister Street
San Francisco, California 94102

Dear Colonel Flertzhelm:

The Federal Highway Administration has reviewed the Final Environmental Impact Statement for the U.S. Army Corps of Engineers, San Quentin Landfill, Marin County, and has no comments to offer on the subject Statement.

We appreciate this opportunity to review the subject Final Statement.

Sincerely yours,

[Signature]
R. E. Rawley
Regional Administrator

RESPONSE TO COMMENT BY THE CALIFORNIA DEPARTMENT OF PARKS AND RECREATION

1. The borrow site is the same area that the San Quentin Disposal Company proposes to fill. A May 1974 study prepared by the Marin County Historical Society of the site found no potential historical resources that would be affected by the proposed project. Another study performed in May 1974 by the A.E. Treganza Anthropology Museum found no evidence of pre-historic or historic cultural activity on the site.

G-1

Document G-1

G-3

STATE OF CALIFORNIA - THE RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 3390
SACRAMENTO 95811
(916) 445-8006



STATE OF CALIFORNIA - BUSINESS AND TRANSPORTATION AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF TRANSPORTATION

P.O. BOX 3388 RINCON ANNEK
SAN FRANCISCO 94119
(415) 537-1840



December 8, 1975

December 11, 1975

04-MRN-17

Colonel H. A. Flertzhelm, Jr.
District Engineer
San Francisco District Corps of Engineers
100 McAllister Street
San Francisco, California 94102

Dear Colonel Flertzhelm:

Thank you for the opportunity to provide comments on Public Notice No. 74-0-09 concerning the proposed disposal of 900,000 cubic yards of debris and cover material on 21 acres of land located approximately one mile north of San Quentin Point in San Rafael, Marin County.

Compliance with Executive Order 11593 requires that the Corps of Engineers identify cultural properties located within the area of the undertaking's potential environmental impact that are included in or eligible for inclusion in the National Register of Historic Places. The Corps of Engineers should conduct an archeological investigation of the borrow and fill site locations to ensure proper protection of significant historical and prehistorical values.

Please do not hesitate to contact this office should you require further assistance regarding this matter.

Sincerely,

[Signature]
Dr. Enos Mellon
Historic Preservation Coordinator
Office of Historic Preservation

A-1/2

G-2

Document G-2

G-4

Document G-3

Colonel H. A. Flertzhelm, Jr.
District Engineer
San Francisco District
Corps of Engineers
100 McAllister Street
San Francisco, CA 94102

Dear Colonel Flertzhelm:

This is in response to your referral of the Proposed Final Environmental Statement for San Quentin Landfill Regulatory Permit Application, San Rafael, Marin County, California, dated October, 1975.

CALTRANS, District 4, comments on the Draft Environmental Statement (Appendix D-21), includes a statement that the Environmental Statement should include an evaluation of the adequacy of the drainage system and flood control measures to protect Route 17 from flooding. The response (Section 9.14) does not constitute such an evaluation. The fact that the drainage system provides some benefit does not provide the answer to the question concerning ability to provide the full service needed. Therefore, the question remains unanswered as to the impact the existing and proposed landfills will have on Route 17 drainage conditions. It is our opinion that answers to these questions should be provided in any case, now or in the future, wherein landfilling in the East San Rafael Drainage Assessment District is under consideration.

Very truly yours,

T. R. LAMBERS
District Director

By *[Signature]*
B. C. BACHTOLD
Deputy District Director

RESPONSE TO COMMENT BY THE CALIFORNIA DEPARTMENT OF TRANSPORTATION

1. The City of San Rafael has formed a drainage district to provide flood control capability for the entire East San Rafael area. The storm drainage facilities were designed on a 100-year storm return frequency. Calculations indicate that the maximum water surface elevation in the drainage channel south of Highway 17, based on the 100-year storm, would be 1.3 feet on USC and GS datum. The elevation of Highway 17 was considered at the time the drainage district was formed, and the features of the district were designed to protect Highway 17 at that elevation. The City of San Rafael maintains that the Highway has settled subsequently. The City is responsible for the continued operation and maintenance of the drainage district.

RESPONSE TO COMMENTS BY BAY LAND AREA STUDY TEAM

1. & 2. The issue of State ownership of tidelands is not within the purview of the Corps Jurisdiction in connection with the issuance of permits except to the extent the State Agencies comment on the Public Notices.

G-5

G-7

WEST BAY - Box 602
Brisbane, Calif. 94005

BAY LAND AREA STUDY TEAM (BLAST)

EAST BAY - 831 Laurel
Alameda, Calif. 94501

Col. HENRY A. FLERTSHEIM, Jr.
SF District CORPS OF ENGINEERS
100 McAllister Street
SAN FRANCISCO, Calif. 94102

5 December 1975

Dear Col. FLERTSHEIM, SPNED-E:

Re: Proposed Final EIS 74-0-09 dated October 1975
41-acre San Quentin Sanitary Landfill conducted on
TIDE Lots 2, 3 and 15, Section 11, T1N, R6W, MDB&M
Marin County Assessor's Parcel 9-150-52

Subject dump is located within 5 miles of the CCSF line in San Francisco Bay and within 1 1/2 miles of the State Prison at San Quentin. Your headquarters' Public Notice 56-47 shows its bayward end (Tide Lot 2) lying BELOW the 1956 MLW line. That is SURMERGED (and State SOVEREIGN) lands by anyone's definition. Proposed Final EIS Paragraph 1.04 and Plate 3 are thus erroneous.

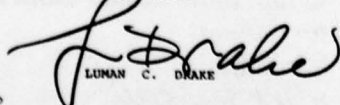
No State patents (deeds signed by a governor) and no federal (swamp) patents have ever issued on the subject TIDE lots. Permit 74-0-05 MUST be held in abeyance until the applicant or the owner of record (Who is Equitable Development Company?) SHOWS private ownership of the subject TIDELands under 1927 Statutes Chapter 790 page 1545, copy attached.

1
2 What is the written position of the California State Lands Division with respect to the Bay lands granted the City under 1923 Statutes Chapter 83 page 1587?

Our study team has received no reply to date from our BLAST of 27 June 1975 to Patrick Wilson of Western Title, copy attached.

Thank you for helping us get Marks Footnote 6, 6 Cal.3d 258 (1971) fixed in Marin County.

RESPECTFULLY:


LUMAN C. DRAKE

cc William F. Northrop
Jos. C. Houghteling
William G. Kirkham
San Rafael City Clerk
Martin J. Bramante
Paul De Falco, Jr.
Webster Otis
Waide Egner
Philip Molteni

G-6

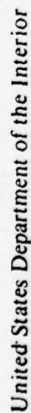
Document G-4

APPENDIX H
MITIGATION DOCUMENTS

APPENDIX H
MITIGATION DOCUMENTS

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FISH AND WILDLIFE SERVICE

Division of Ecological Services
2800 Cottage Way, Rm. E-2727
Sacramento, California 95825

September 18, 1978

Colonel John M. Adsit
District Engineer
San Francisco District, Corps of Engineers
San Francisco, California 94105

Dear Colonel Adsit:

As requested in our meeting of July 13, 1978, we have reevaluated the habitat values of those portions of East San Rafael which either have regulatory actions pending, or are within Corps of Engineers jurisdiction and will require permits in the future.

This evaluation was done utilizing the Habitat Evaluation Procedures (HEP) developed by the Fish and Wildlife Service. The HEP was performed on September 6, 1978. In addition to our staff, the California Department of Fish and Game, the National Marine Fisheries Service, and the Corps of Engineers were represented on the HEP team.

To complement our own efforts, a consulting firm, Madrone Associates, was retained to compile and map environmental information in this area. Their report is attached.

Except for two areas the habitat values in this report reflect the existing value. The first of these, area 3, has been filled without a Corps of Engineers permit. The habitat value indicated for this area is the average value of the two nearest unfilled areas (2 and 4). The same procedure was employed to arrive at a habitat value for the second area, area 8, which has been and continues to be excavated without authorization. These habitat values do not represent the present condition of the areas because we do not believe it appropriate to "reward" the responsible parties for proceeding without a permit by reevaluating the lands in their presently degraded condition.

From a biological perspective the optimum management technique for the hands under consideration would be the restoration of the unfilled areas to tidal action. In area 9 an additional factor is the adjacent wastewater treatment plant which is a potential source of freshwater. If freshwater were made available then a combination of freshwater and

ONLINE
AMERICA'S
ENERGY

H-1

Save Energy and You Serve America!

DOCUMENT H-1

saltwater marshes could be created which would produce a very wide range of habitats.

No values were computed for city-owned drainage areas (1,2,10 and 13), nor for area 12 which is undiked tidal marsh as these areas are unlikely to change in character.

With proper management all of the unfilled areas could be brought up to a habitat value of 80-100 habitat units per acre. If these areas are filled as proposed their value would be reduced to the range of 0 to 10 habitat units per acre.

Sincerely,

James J. McKevitt
Field Supervisor

Attachment

cc: Dir., CDF&G, Sacramento, California
Reg. Mgr., Reg. III, CDF&G, Yountville
BCDC, San Francisco, CA
CWDQCB, Oakland, CA
City of San Rafael, Attn: Mr. Bielser
Corps of Engineers, San Francisco District
" " " " "
" " " " "
" " " " "
" " " " "

(pers. attn: Colonel Adsit)
D. Cerese, SPNCO-RN
attn: B. Option, SPNED-EA

Editor's note: The area numbers on the far left column of the following Habitat Evaluation have been superseded. The new parcel numbers are indicated in the second column from the left. They refer to plate 7.

HABITAT VALUE BY AREA

AREA	ACREAGE	HABITAT UNITS/ACRE	COMP. UNITS	OWNER	APPLIC. PENDING	PARCEL NUMBERS
1	9	70	N/A	City	no	9-29-08 29-09 29-11
2	8	65		City	no	9-29-09 29-11 29-12
(3)	.46		26.22	Gardiner	9715-47	9-29-23
(3A1)	.18		10.26	Morphew	12444-47	9-29-24
3	.37	57	21.09	Morphew	12444-47	9-29-25
(6b)	.49		22.80	Ghillotti	11403-47	9-29-32
(6c)	.15		8.55	Ghillotti	11403-47	9-29-33
	1.56		88.92			
(3A3)	1.70		81.6	Morphew	12444-47	9-29-25
4	2.80		134.4	Holiday	no	9-29-27
(4A)	.80		38.4	Holiday	no	9-29-26
5	2.90		139.2	Haskell	9441-47	9-29-31
(6A)	.20		9.6	Ghillotti	11403-47	9-29-32
	8.40	48	403.2			
(5A)	4.50		315	Haskell	9441-47	9-29-31
5	.40		28	Haskell	no	29-31
6	.45		31.5	Ghillotti	11403-47	9-29-32
	5.35	70	374.5			

H-3

AREA	ACREAGE	HABITAT UNITS/ACRE	COMP. UNITS	OWNER	APPLIC. PENDING	PARCEL NUMBERS
7	2.5			MWD	9542-47	9-29-30
(7A)	2.4	Dedicated for Park Purposes	MWD			
8	6.61	58	383.38	San Quentin	9244-47	9-01-26
(8A)	1.8	67	120.6			
(8B)	1.8	72	129.6			
	10.21		633.58			
9	4.8	56	268.8	Holiday Magic	12255-47	9-01-29
(9A)	50.0	50	2500.		no	9-01-23
(9B)	33.0	58	1914.		no	9-01-22
	92.8		4682.8			
10	17.0	N/A		City	no	9-01-25
11	19.0	58	1102	San Rafael Cays Inc.	no	9-01-19
(11A)	27.5	75	2062.5			90-142-26
	46.5		3164.5			9-01-18
12	6.0	N/A		Tiscornia		9-142-01
13	.61	N/A		City		9-032-08

H-4

HABITAT VALUE BY OWNER

OWNER	AREA	ACREAGE	HABITAT UNITS	COMP. REQUIRED	APPLIC. PENDING	PARCEL
City	1	.9	70		no	9-20-08 -09 -11
City	2	.8	65		no	9-29-09 -11 -12
City	10	17.0	N/A		no	9-01-25
City	13	.61	N/A		no	9-032-08
Gardiner & Morphew	3	.46			9715-47	9-29-23
Morphew	(3A1) (3A2) (3A3)	.18 .37 1.70	57	10.26 21.09 96.9	12444-47	9-29-24 -25 -25,36,37
		2.25		128.25		
Holiday Magic	4	2.80	48	134.4	no	9-29-27
Herzstein Trust	(4A) 9 (9A) (9B)	.80 4.8 50.0 33.0 91.4	48 56 50 58	38.4 268.8 2500.0 1914.0 4855.6	no 12255-47 no no	9-29-26 9-01-29 9-01-23 9-01-22
Haskeil Norman	5 (5A) (5B)	2.90 4.5 .40 7.8	48 70 70	139.2 315.0 28.0 482.2	9441-47 no no	9-29-31 -34

H-5

OWNER	AREA	ACREAGE	HABITAT UNITS	COMPENSATION REQUIRED	APPLICATION PENDING	PARCEL
Chilotti Bros. Fairview Lands	6 (6A) (6B) (6C)	.45 .20 .40 .15 1.2	70 48 57 57	31.5 9.6 22.80 8.55 72.45	11403-47	9-29-32
MMO	7 (7A)	2.5 2.4			9542-47	9-29-30
						dedicated for park purposes
San Quentin Landfill Co.	8 (8A) (8B)	6.61 1.8 1.8 10.21	58 67 72	383.38 120.6 129.6 633.58	9344-47	9-01-26
San Rafael Cays Inc.	11 (11A)	19.0 27.5 46.5	58 75	1102 2062.5 3164.5	no no	9-01-19 -01-20 9-142-26 9-01-18
Tiscornia	12	6.0	N/A		no	9-142-01

H-6



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

The following is an example prepared by the San Francisco District,
U. S. Army Corps of Engineers* of how the U. S. Fish and Wildlife Service
Habitat Evaluation Procedure is applied.

A value of "1" to "10" was assigned for each of six categories of wildlife
habitat for each land parcel under Corps jurisdiction. A score of "1"
represents the lowest habitat value, while "10" represents the highest
habitat value. The point values determined for each wildlife category
were summed by parcel number. This sum was divided by the maximum possible
value to derive the ratio of existing habitat value to the maximum possible
value. This ratio was multiplied by 100 units/acre to establish a habitat
value in terms of units/acre. A value of 10 units/acre represents bare
areas above mean higher high water (MHHW)** with no potential for improve-
ment and 100 represents tidal marsh, mudflat, or open water areas subject
to full tidal action. The evaluation for parcel #5 (as indicated on plate 7,
jurisdictional base map) is used below to demonstrate the process.

Wildlife Category***	Value Assigned	Maximum Points Possible
Passerine birds	6	10
Shore birds	5	10
Waterfowl	8	10
Wading birds	7	10
Food chain invertebrates	9	10
Small mammals	7	10
TOTALS	42	60

The point total is 42 with the total maximum points possible being 60.
This score was converted to habitat value units/acre as follows: 100 units/
acre x 42 pts./60 pts. = 70 units/acre.

The Fish and Wildlife Service has determined compensation units by multi-
plying the habitat units/acre by the acreage of each parcel. However,
the actual amount of mitigation required will vary depending upon the
habitat value of the parcel after development. The required mitigation is
determined by subtracting the post-development habitat value from the pre-
development habitat value of the parcel. According to the U. S. Fish and
Wildlife Service the development planned for East San Rafael Baylands would
reduce the existing habitat value to a possible 10 units/acre for each
parcel under consideration. In the above example, this would be a reduction
of 60 units/acre (70 units/acre pre-development value - 10 units/acre post-
development value = 60 units/acre reduction in habitat value). A reduction
of 60 units/acre over 5.35 acres (size of parcel #5) yields a total reduction
in habitat value of 321 units. Compensation for this reduction in habitat
value of 321 units could be accomplished by upgrading the existing habitat

value of a nearby land parcel by 321 units. For example, adequate
compensation could be provided by upgrading 12.84 acres by 25 units/acre
(12.84 acres x 25 units/acre = 321 units) or by upgrading 6.42 acres by
50 units/acre (6.42 acres x 50 units/acre = 321 units), or other combina-
tions which would provide a minimum of 321 units.

- * Preparation of this example was coordinated with the U. S. Fish and
Wildlife Service.
- ** Lands above mean high water (MHHW) are out of the Corps jurisdiction.
- *** Each of these categories is applied to each parcel.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Area Office
2800 Cottage Way, Room E-2740
Sacramento, California 95825

22 SEP 1978

In reply refer to: ES-5

Colonel John M. Adsit
District Engineer
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, California 94105

Re: East San Rafael

Dear Colonel Adsit:

I have reviewed the correspondence and the habitat evaluation for East San Rafael prepared by the Sacramento Field Office. It is clear that the sites proposed to be filled retain to varying degrees, the habitat values and characteristics which make wetlands a valuable public resource.

All of the unfilled sites are either permanently or seasonally inundated. These are the subject of several public notices. The vegetation throughout these sites is typical of salt marshes in the bay area. Their value is attested to by the fact that no fewer than 105 species of birds, including waterfowl and many shorebirds, utilize the area for all or a portion of their habitat needs.

Portions of the area have been filled without prior authorization. It is doubtful if removal of the fill material in these sites would result in the recovery of the resource values which have been destroyed. However it is appropriate that the owners of these properties be required to provide full compensation for those values destroyed. The habitat evaluation presented in our letter to you dated September 18, 1978 should provide the basis for this mandatory compensation. Our Ecological Services Field Office will provide all the necessary technical assistance.



Save Energy and You Serve America!

H-9

DOCUMENT H-3

It is of considerable interest that none of the projects presently proposed in this area have any dependence on a waterfront location. It has always been the position of the FWS that the shore zone is a limited public resource the use of which should be limited to those activities which are dependent on access to the water. We are particularly concerned where a non-water dependent activity would encroach upon biologically productive wetlands, such as these. Unless there is an overriding public interest benefit which would require use of such a site, the Service invariably recommends against permit issuance.

Because of the expected loss of public fish and wildlife values and, lacking a rationale for concurring in the further destruction of the subject wetland sites, the Fish and Wildlife Service objects to the issuance of any permit for additional fill.

Similarly we deplore the destruction that has already occurred on sites 3, 4, 5, 7, and 9, and recommends against the issuance of after-the-fact permits for those fills unless the applicant first fully compensates for the habitat values lost.

Sincerely yours,

William T. Shuey
Area Manager
(for) U.S. Department of the Interior
Coordinator

cc: Dir., CDF&G, Sacramento
Reg. Mgr., CDF&G, Reg. III, Yountville
CPO/OCB
City of San Rafael

* Editor's Note: These area numbers have been superseded. The new parcel numbers are indicated below and refer to plate 7.

New Parcel Numbers
3= 3, 3A(1), 3A(2), 6B, 6C.
4= 3A(3), 4, 4A, 5, 6A.
5= 5A, 5B, 6.
7= 7, 7A.
9= 9, 9A, 9B.

Areas 5A, 5B, 7 and 7A do not require after-the-fact fill permits. Discussion with the Fish and Wildlife Service revealed that this letter was based on an earlier map which has since been revised (Plate 7).

H-10

DEPARTMENT OF FISH AND GAME

1415 MISSION STREET
SACRAMENTO, CALIFORNIA 95814
(916) 445-1531

EDWARD G. BROWN JR., Governor



Memorandum

Department Directors, Executive
Officers of Boards & Commissions

Date SEP 19 1977

File No.

Wetlands Policy for
Proposed Construction Projects

Office of the Secretary

12 SEP 1978

Colonel John M. Adair
District Engineer
San Francisco District
U.S. Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Colonel Adair:

The Department of Fish and Game has reviewed your April 4, 1978 map (revision date September 1, 1978) entitled East San Rafael Filling Baylands Area. We have made a field inspection of each of the areas you designated on the map and have determined that Areas 1, 2, 4, 4A, 5, 5A, 6, 6A, 8A, 9A, 9B, 10, 11, 11A, 12, and 13 are existing wetlands. These areas would be subject to the Resource Agency's September 19, 1977, Basic Wetlands Policy. We would object to any project that would destroy these areas unless the project meets the requirements for exception to the Policy.

Area 8 is not presently wetlands and is not subject to the Wetlands Policy. However, the potential biological values are significant and the proximity to the bay and adjacent wetlands (Area 9A) make this area prime for restoration. Based on the potential biological values, we would recommend that Area 8 not be filled.

Areas 3, 3A(1), 3A(2), 6C, 6B, 7, 7A and 9 are areas where unauthorized fill has been placed on wetlands prior to the wetlands policy. Our position on these areas can only be determined on a case-by-case basis. We anticipate our course of action would involve requesting removal of such fill or if found to be impracticable, to request adequate compensation to replace the wildlife values lost as a result of these fills.

Thank you for the opportunity to provide input to your evaluation of this important wildlife area.

Sincerely,

Director

Editor's Note: The parcel numbers refer to plate 7. The California Department of Fish and Game has determined that Area 3A(3) is an existing wetland subject to the Basic Wetlands Policy and was inadvertently omitted from this letter. Areas 7 and 7A are not areas where unauthorized fill has been placed.

M-11

DOCUMENT M-4

POLICY FOR PRESERVATION OF WETLANDS IN FERTILITY

The need to raise, thinking, policy, and action to the ecosystem level is especially evident as it relates to proposed construction projects on Wetlands of the state.

The value of marshlands and other wetlands to the economy and to the overall long-term quality of life, has been described by many, including Gosselink, Odum, and Pope (1973) in "The Value of the Tidal Marsh"; the Bay Conservation and Development Commission, (BCDC) in, "The San Francisco Bay Plan"; and the Department of Fish and Game in, "The Fish and Wildlife Plan". In spite of these and other efforts, filling and other destruction of the State's wetlands has continued at an alarming rate. Most of San Francisco Bay's wetlands are now protected by BCDC. But before the commission came into existence over 225 square miles of Bay wetlands had been filled or destroyed. Still not all of the Bay's wetlands are protected. Over 40,000 acres are not in the commission's jurisdiction.

Portions of other important wetlands still exist along the coast, its estuaries, the Sacramento-San Joaquin Delta and along natural bodies of water including Clear Lake, the Colusa River and others. Many of these wetlands are not under permit authority from a specific State agency. However, local authority and certain federal authority (Corps of Engineers) exists over specific projects and areas.

It is the purpose of this memorandum to establish a basic wetlands policy to be observed by all Departments, Boards, and Commissions of the Resources Agency when developing projects or when authorizing

M-12

SEP 10 1977

Department Directors, Executive
Officers of Boards & Commissions

-3-

or influencing private or public projects and permit actions taken by other authorities including federal, state and local agencies.

BASIC WETLANDS PROTECTION POLICY

It is the basic policy of the Resource Agency that this Agency and its Departments, Boards and Commissions will not authorize or approve projects that fill or otherwise harm or destroy coastal, estuarine, or inland wetlands.

Exceptions to this policy may be granted provided that the following conditions are met.

1. The proposed project must be water dependent or an essential transportation, water conveyance or utility project.
2. There must be no feasible, less environmentally damaging alternative location for the type of project being considered.
3. The public trust must not be adversely affected.
4. Adequate compensation for project-caused losses shall be a part of the project. Compensation, to be considered adequate, must meet the following criteria:

- a. The compensation measures must be in writing in the form of either conditions on a permit or an agreement signed by the applicant and the Department of Fish and Game or the Resource Agency.
- b. The combined long-term "wetlands habitat value" of the lands involved (including project and mitigation lands) must not be less after project completion than the combined "wetlands habitat value" that exists under pre-project conditions.


Mary D. Johnson
Secretary for Resources

APPENDIX I

CLEAN WATER ACT

SECTION 404(b) EVALUATION

EVALUATION OF THE EFFECTS OF THE DISCHARGE
OF BREKED OR FILL MATERIAL INTO WATERS
OF THE U.S. USING THE SECTION 404(b) GUIDELINES
EAST SAN RAFAEL BAYLANDS DEVELOPMENT

I. PROJECT DESCRIPTION

A. Description of the Proposed Fill Materials. The source of the fill material is unknown. The quantity of fill material is also unknown, however, about 51 acres are proposed to be filled to a level suitable for development.

B. Description of the Proposed Disposal Sites for Fill Material. The sites proposed to be filled are parcel numbers 3, 3A(1), 3A(2), 3A(3), 4, 4A, 5, 6, 6A, 7, 7A, 8, 9, 9B, 11 and a portion of 9A as indicated on plate 7 of the Environmental Statement. The areas to be filled are seasonal ponds with wetland vegetation, except parcels 3, 3A(1), 3A(2), 6, 6A and a portion of parcel 9 which are former wetlands that have been filled. The method and timing of disposal are unknown at this time.

II. PHYSICAL EFFECTS

A. Potential Destruction of Wetlands - Effects On (40CFR 230.4-1 (a) (1) (i-vi)).

1. Food Chain Production. Because the area is isolated from tidal action, the impact upon the San Francisco Bay aquatic food chain would be minimal. The permanent ponds would be preserved, however, they may experience a decline in productivity due to the proximity of construction and development. Filling of the wetlands would involve the

loss of feeding areas for insects, rodents, terrestrial, shore, and wading birds, waterfowl, and raptors.

2. General Habitat. The project site was historically tidal marsh which has been diked and filled. Habitat descriptions for each parcel under Corps jurisdiction for which fill is proposed is contained in paragraph 2.09.

3. Nesting, Spawning, Rearing and Resting Sites for Aquatic or Land Species. Development and fill proposals would eliminate approximately 51 acres of wetland habitat used by ducks, herons, egrets and other water-associated birds as well as small mammals and passerine birds. One-hundred twenty-five species of birds have been observed on the project site. Fish spawning would not be affected.

4. Natural Drainage Characteristics. The seasonal ponding areas would be filled. This and the addition of paved ground surface would increase the amount and velocity of runoff into the permanent drainage ponds.

5. Sedimentation Patterns. Construction activities would involve a significant temporary increase in sedimentation into the permanent ponds. The completed development will not affect sedimentation.

6. Salinity Distribution. As the project site is isolated from the bay, no change in salinity distribution is expected.

7. Flushing characteristics. Not applicable. The sites to be filled are not directly connected to the Bay.

8. Current Patterns. Not applicable. The sites to be filled are not directly connected to the Bay.

9. Wave Action, Erosion or Storm Damage. Wave action is not applicable. Increased velocity of runoff could increase erosion. Storm drainage protection would decrease. The flood hazard for State Route 17 would increase.

10. Storage Areas for Storm and Flood Waters. About 51 acres of seasonal ponding areas would be filled. The all-year ponds and drainage district would be preserved.

11. Prime Natural Recharge Areas. Not applicable as there are no aquifers underlying the project site.

8. Impact on Water Column (40 CFR 230.4-1 (a)(2))

1. Reduction in Light Transmission. Temporary increased turbidity in the drainage district ponds and permanent ponds is expected during construction.

2. Aesthetic Value. The appearance of the water in the drainage district ponds and permanent ponds would be affected during construction activity due to turbidity.

3. Direct Destructive Effects on Nektonic and Planktonic Populations. The potential introduction of urban pollutants into the drainage district and permanent ponds may adversely impact nektonic and planktonic organisms.

I-3

C. Covering of Benthic Communities (40 CFR 230.4-1 (2)(3))

1. Actual Covering of Benthic Communities. Not applicable.

The proposed activity would not involve placing fill in a waterway or any of the permanent ponds.

2. Changes in Community Structure or Function. Not applicable. The impacts on benthic communities in the ponds would be limited to secondary impacts from the introduction of urban pollutants and sediments into the ponds.

D. Other Effects (40 CFR 230.4-1(a))

1. Changes in Bottom Geometry and Substrate Composition. The filling and construction activity would occur on reclaimed land behind dikes and, therefore, the proposed activity would not have any direct impact on San Francisco Bay or any other waterway.

2. Water Circulation. The filling and construction activity would occur on reclaimed land behind dikes and, therefore, the proposed activity would not have any direct impact on San Francisco Bay or any other waterway.

3. Salinity Gradients. The filling and construction activity would occur on reclaimed land behind dikes and, therefore, the proposed activity would not have any direct impact on San Francisco Bay or any other waterway.

III. CHEMICAL-BIOLOGICAL INTERACTIVE EFFECTS (40 CFR 230.41 (b))

Not applicable. The proposed fill will not be placed in a waterway.

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IV. DESCRIPTION OF SITE COMPARISON (40 CFR 230.4-1 (c))

Not applicable. The proposed fill will not be placed in a waterway.

V. WATER QUALITY STANDARDS

State Water Quality Certification is not required for the fill activity. A water quality control plan may be necessary to prevent polluted runoff from developed areas entering the Bay. If a plan is necessary, it will be made in accordance with the Regional Water Quality Control Board standards.

VI. SELECTION OF DISPOSAL SITES (40 CFR 230.5) for Fill Material

A. Needs for the Proposed Activity. The filling of the project site is required for development of the site for commercial, residential and industrial development as indicated in the San Rafael Redevelopment Plan and Policy Statement (Appendix D). The proposed development is not water related except for the proposed park along the Bay shoreline.

B. Alternatives considered. Alternatives to the granting of fill permits are discussed in Section 6 of the Environmental Statement.

C. Objectives to be Considered in Discharge Determination (40 CFR 230.5 (a)):

1. Impacts on chemical, physical, and biological integrity of the aquatic ecosystem (40 CFR 230.5(a)(1)). The impact on the aquatic ecosystem will be limited to secondary effects from introduction of urban pollutants from developed areas into the permanent ponds and the Bay.

2. Impact on food chain: These impacts are discussed in Section II of this evaluation.

3. Impact on diversity of plant and animal species: The proposed fill will decrease species diversity. The destruction of wetland vegetation will eliminate the habitat of shore and wading birds and waterfowl. Vegetation after development will be limited in quantity and will consist of upland plants. Animal activity will probably be restricted to passerine birds, rodents and domestic animals.

4. Impact on movement into and out of feeding, spawning, breeding and nursery areas. The destruction of the wetlands will eliminate an important feeding area for birds migrating along the Pacific flyway.

5. Impact on wetland areas having significant functions of water quality maintenance. Not applicable. The areas to be filled are seasonal ponds isolated from the Bay.

6. Impact on areas that serve to retain natural high waters or flood waters. This information is included in Section II of this evaluation.

7. Methods to minimize turbidity. The permanent ponds may experience some turbidity due to construction activities. Specific measures to minimize turbidity have not been proposed.

8. Methods to minimize degradation of aesthetic, recreational and economic values. The proposed project will increase the economic

value of the project site. Open space and a view of the Bay will be eliminated on the project site except for the 100-foot wide strip along the Bay which will be preserved as open space.

9. Threatened and endangered species. The proposed project will destroy habitat used by the salt marsh harvest mouse.

10. Other methods that avoid degradation of aesthetic, recreational and economic value of navigational waters. Not applicable.

The proposed project will not impact navigational waters as fill is only proposed for land shoreward of existing levees.

D. Impacts on Water Uses at Proposed Disposal Site (40 CFR 230.5

(b) (1-10). The proposed filling would not occur in a waterway, but on wetlands. The impact upon the wetlands is discussed in Section II of this evaluation.

E. Considerations to Minimize Harmful Effects of Dredge Discharge. Not applicable. The proposed project does not include any disposal of dredged materials.

APPENDIX J*

PROPOSED FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR SAN QUENTIN LANDFILL REGULATORY PERMIT
APPLICATION, OCTOBER 1975

*Appendix J contains the Proposed Final Environmental Statement on the San Quentin Landfill Regulatory Permit Application, San Rafael, Marin County, California dated October 1975. Since the publication date of October 1975, conditions and events have changed. These changes have been noted to the extent possible on the following inclosed sheet.

ERRTA for Proposed Final
Environmental Statement on San Quentin Landfill

- Summary paragraph 2 Description of Action: The Corps has determined that 10.21 of the 21 acres is within its jurisdiction. The 10.21 acres would require ___ cubic yards of fill on ___ acres.
- Page iii Appendix D Comments: This appendix is now included in Appendices F and G of the East San Rafael Baylands Development FES.
- Page 1 paragraph 1.03 3rd Sentence: Change " . . . mean higher high water MHHW." to " . . . mean high water MHW."
- Page 2 paragraph 1.05 3rd Sentence: There are currently six permit applications for fill projects in the East San Rafael Baylands. See paragraphs 1.10 and 1.11 of the East San Rafael Baylands Development FES for current permit application details.
- Page 2 paragraphs 1.06 - 1.08: Current information on proposed fish and wildlife mitigation for San Quentin Landfill may be found in paragraph 1.28 of the East San Rafael Baylands Development FES.
- Page 13 paragraph 2.54: The area considered under permit application number 10564-47 was determined to be outside Corps jurisdiction per Corps Public Notice 71-22 B dated 6 July 1976.
- Page 14 paragraph 3.01: The current membership of ABAG is composed of 87 cities and 7 counties.
- Page 20 paragraph 4.17: The permit area is currently 10.21 acres.
- Page 21 paragraph 4.26: Change ". . . 21 acres . . ." to ". . . 10.21 acres . . .".
- Page 24 paragraph 4.38: The difficulty in satisfying local water demand has been alleviated.
- Page 25 paragraph 5.03: Change " . . . the 21-acre site." to " . . . a portion of the site."
- Page 28 paragraph 8.01: For a current habitat evaluation of this site refer to Appendix H, Document H-1.

PROPOSED FINAL
ENVIRONMENTAL STATEMENT

SAN QUENTIN LANDFILL
REGULATORY PERMIT APPLICATION
SAN RAFAEL, MARIN COUNTY, CALIFORNIA

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO, CALIFORNIA
OCTOBER 1975

SUMMARY

SAN QUENTIN LANDFILL
REGULATORY PERMIT APPLICATION
SAN RAFAEL, MARIN COUNTY, CALIFORNIA

() DRAFT

(X) PROPOSED FINAL
ENVIRONMENTAL STATEMENT

RESPONSIBLE OFFICE : District Engineer
U.S. Army Engineer District, San Francisco
100 McAllister Street
San Francisco, California 94102

1. NAME OF ACTION: (X) ADMINISTRATIVE () LEGISLATIVE

2. DESCRIPTION OF ACTION: The San Quentin Disposal Company, San Rafael, California, has applied for a Department of the Army Permit to place approximately 900,000 cubic yards of fill on 21 acres of privately owned land in the City of San Rafael, California. According to the San Rafael General Plan the ultimate land use for the project site area is industrial and open space.

3. (A) ENVIRONMENTAL IMPACTS: The proposed project would provide for industrial expansion, improve economic conditions for the City of San Rafael, and diminish shoreline habitat.

(B) ADVERSE ENVIRONMENTAL EFFECTS: Continued truck traffic through East San Rafael will produce noise and air emissions. Although the site presently supports little or no wildlife, continued fill and the ensuing development amount to an irreversible action. Further degradation of air and water quality can be expected once the Baylands are developed. Differential settlement may be a problem to future development and filling the diked region may result in drainage problems for Highway 17.

4. ALTERNATIVES TO THE PROPOSED ACTION: The only alternative to the proposed action is denial of the permit.

5. COMMENTS RECEIVED:

U.S. Department of Agriculture
U.S. Department of Commerce
U.S. Department of Health, Education and Welfare
U.S. Department of Interior
U.S. Department of Transportation
Advisory Council on Historic Preservation
Environmental Protection Agency
State of California:
Department of Fish and Game
State Solid Waste Management Board
Department of Transportation
Department of Health

6. DRAFT STATEMENT TO CEQ: 29 November 1974.
FINAL STATEMENT TO CEQ: _____.

PROPOSED FINAL
ENVIRONMENTAL STATEMENT
SAN QUENTIN LANDFILL
REGULATORY PERMIT APPLICATION
SAN RAFAEL, MARIN COUNTY, CALIFORNIA

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PROPOSED FINAL

ENVIRONMENTAL STATEMENT
SAN QUENTIN LANDFILL
REGULATORY PERMIT APPLICATION
SAN RAFAEL, MARIN COUNTY, CALIFORNIA

1.00.	PROJECT DESCRIPTION
1.01.	Proposed Project. The San Quentin Disposal Company of San Rafael, California, has applied for a Department of the Army Permit to place approximately 900,000 cubic yards of debris and earthfill on 21 acres of privately owned land in the City of San Rafael, California (Plate 1).
1.02.	The site is located approximately one mile north of Point San Quentin on San Rafael Bay and behind a levee constructed in 1956 under Department of the Army Permit Number 56-47 (Plate 2). The proposed project would place 625,000 cubic yards of Group 3 materials (i.e., nontoxic, nonsoluble, nondecomposable solids such as earth, rock, concrete, glass, and plastics) and 275,000 cubic yards of earthfill on the 21 acre Class II site to elevate it to a height and soil compactness suitable for the development of light industry (Plate 3).
1.03.	Authority. The information in this final report is furnished in accordance with Section 102 of the National Environmental Policy Act of 1969 (42 USC Sec. 4332). The Corps of Engineers jurisdiction over the 21-acre site stems from the River and Harbor Act of 1899, Section 10 (33 USC Sec. 403), as interpreted by the Corps Public Notice dated 18 January 1972. This interpretation (Public Notice 71-22(a)) gives the Army jurisdiction over all new work in unfilled portions of the interior of diked areas below former mean higher high water MHHW. An evaluation of the impacts of a proposed activity on all aspects of the quality of the environment is required prior to issuance of a permit by the Department of the Army. This Environmental Statement makes such an evaluation of the San Quentin Disposal Company Landfill.
1.04.	The San Francisco Regional Water Quality Control Board has issued Certificate No. 73-42 as required by the Federal Water Pollution Control Act of 1972 (33 USC Sec. 1251 et seq.). Permits are not required from the San Francisco Conservation and Development Commission (BCDC) or the California Coastal Zone Commission due to lack of jurisdiction. The project is located more than 100 feet from the Bay boundary, thereby excluding it from the domain of BCDC, and the Coastal Zone Commission has no regulatory jurisdiction within the San Francisco Bay. All permits required by the City of San Rafael for existing fill operations, including a Use Permit, Fill Permit, and Public Works Operating Permit, have

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been obtained. In February 1975 the San Rafael Planning Commission and City Council both approved an extension of the San Quentin Disposal Co. Use Permit to October 1984, to permit the completion of the site filling (Bernhard, April 1975).

1.05. **Interrelationship and Compatibility of the Project with Existing or Proposed Corps or Other Federal Agency Projects.** There are no existing or proposed Corps or other Federal agency projects in the immediate vicinity of the project site. The Corps has received four permit applications for fill projects in the San Rafael Baylands. These include Dr. Haskell Norman (Public Notice 74-126-136), Samuel Gardiner (Public Notice 74-0-25), W.R. McMillan (Public Notice 75-198-059), and City of San Rafael (ADP Number 4200). Each application, considered separately, appears justified and would not result in significant adverse impact on the environment. However, collectively, the cumulative effects of piecemeal changes could result in a major impairment of environmental quality. Therefore, the Corps will prepare an "umbrella" environmental statement for the San Rafael Baylands to study this piecemeal development. An EIR currently being prepared by the San Rafael Redevelopment Agency will be used as the document on which the Corps will base its environmental statement.

1.06. **Fish and Wildlife Mitigation Proposal.** The San Quentin Landfill Company considers the existing 18-acre assessment district storm drainage pond as mitigation for the landfill project. The drainage pond is presently owned by the City of San Rafael after being purchased by the City from the East San Rafael Drainage Assessment District No. 1.

1.07. **The Environmental Protection Agency (Letter D-5, Appendix D)** suggests a partial fill of the 21 acres, and extra land needed to open space and wildlife areas. The Department of the Interior (Letter D-7, Appendix D) also recommends partial fill with the remainder left to open space, tidal action, or incorporation into the flood basin. Another mitigation measure proposed by the Department of the Interior would be to replace the filled area with one of equal biological value. The California Department of Fish and Game (Letter D-8, Appendix D) suggests opening the 21-acre area to tidal action to serve as a buffer between the Bay and future industrial development.

1.08. **The applicant has considered opening the 21 acres to tidal action as discussed in paragraphs 1.02ff.** However, to date, the applicant does not plan any of the suggested mitigation measures.

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2.00. ENVIRONMENTAL SETTING WITHOUT THE PROJECT

2.01. **General.** The original setting of the proposed landfill was bayside tidelands and marshes, with plants tolerant of daily fluctuations in water level and salinity. The former marshland has been excluded from tidal influence since construction of the San Rafael Levee in 1956. The levees are under Bay Conservation and Development Commission (BCDC) jurisdiction and are maintained by San Quentin Disposal Company under permits and consent by the BCDC, Corps of Engineers and the City of San Rafael. The levees are at least 7 feet above mean higher high water and are faced with 1-1/2 feet of crushed rock, 2 feet of 6 to 8 inch rock, and 5 to 15 feet of concrete riprap. Portions of the area behind the dikes and outside of Corps jurisdiction (above +5.7 feet mean lower low water) have been used as a sanitary landfill since 1956 and, as a result of this activity, the surface has been disrupted with a loss of nearly all natural vegetation. The landfill operation has been carried on in such a manner as to preclude contamination of the Bay waters by leachates.

2.02. **During the winter, water is trapped in low areas surrounding the site and forms brackish pools.** As the water in the pools rises to sea level, the floodgates in the levee are opened and there is a mixing with the water of the Bay. These pools vary in salinity, depth and permanence, and support only temporary populations of tolerant species. During the summer, the gates are closed, and the area, which becomes almost totally dry, supports a variety of plant and animal life. Water collecting in pools on the site itself is continually being pumped out. As a result of this drainage and the constant grading throughout the site, little vegetation and almost no animal life survives.

2.03. **Land Use.** The San Rafael Bay shoreline, a generally open space area south of San Rafael Canal, has been completely altered from its former marshland state through the processes of diking and filling. The land uses in the vicinity of the disposal operation include recreation, rubbish disposal, scattered commercial, light industry, and open space. The San Rafael Redevelopment Agency has indicated that the ultimate mix of land uses would provide a balance of uses as well as the appropriate park and recreation and/or open space for this area. Tentative plans for the area do include some open space along the Bay and a park north of the project site (BCDA, 1975).

2.04. **Climate.** The unique weather conditions found in the San Francisco Bay Area are caused by several important geological, physiographic and meteorological phenomena. Rather than four distinct seasons, the Bay Area has only two; a rainy season and a dry season. The mean maximum temperature for the month of July in San Rafael is over 80°F and the January mean minimum is about 36°F. The San Rafael air monitoring site indicates the wind is predominantly from the southeast in the morning hours and from the northwest in the evening hours. This principal

axis of flow, NW-SE, agrees with the basic alignment of the valleys in the area. Winds are along the axis more than half the time. The day-night reversal in direction is typical of sheltered valley areas where thermal circulations and drainage flows are common. Rain averages from 28 to 36 inches per year and is relatively abundant compared to other Bay Area locales (BAAPCD, 1971).

2.05. **Noise.** Background noise at the disposal site is from Highway 17 and Francisco Boulevard. Noise at the site from these is not noticeable, being muted by users of the site (approximately 150,000 vehicles per year) and machinery used for distribution and compaction of landfill.

2.06. **Air Quality.** The conditions which create the mild microclimate in Marin County also encourages a stable stratification of air (temperature inversions), making the area susceptible to air contamination and smog. The San Rafael basin, with its high frequency of low windspeeds, the sheltering effect of the surrounding terrain, the reversal of wind direction with daytime up-valley and nighttime down-valley flow and high frequency of sunny days, has a potential for frequent accumulation of pollutants in high concentrations.

2.07. **Information regarding the air quality in Marin County, and specifically the study area, is derived almost exclusively from the Bay Area Air Pollution Control District (BAAPCD) air monitoring station in the City of San Rafael.** Since September 1967, this station has been continually recording data on oxidants, carbon monoxide, oxides of nitrogen, hydrocarbons and particulate matter. Prior to the establishment of the station, a continuous record of oxidant concentrations from approximately the same location dates back to 1962.

2.08. **From data provided by BAAPCD, it is evident that standards are rarely exceeded at current emission levels except in the case of oxidants.** Even in the case of oxidants, the number of exceedances is low compared to many other urban areas and must be viewed in light of a very stringent Federal standard. Aside from oxidants, standards have been exceeded occasionally since 1970 in the case of 24-hour average particulate (27 occurrences), 8-hour average carbon monoxide levels (2 occurrences). The maximum observed values it may be noted that values did not greatly exceed the standard in either of the latter two cases (BAAPCD, 1974). The existence of low levels of air pollution in an area of relatively great pollution potential is due to a low rate of contaminant emission and a favorable geographic position generally upwind of major pollutant sources in the Bay Area.

2.09. **The pollutants are almost exclusively automobile-related in Marin County with the greatest concentration in the San Rafael Basin.** This is due to the congested downtown San Rafael area which experiences the poorest air quality levels within the three-basin study area (Napa/Corte Madera, San Rafael and Las Gallinas). This is addressed in the District report on Air Quality and Growth in Marin County (BAAPCD, 1971).

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2.10. **Both soil and vegetation have been found to be important "sinks" (absorption media) for a variety of air contaminants.** It has been recently demonstrated that a variety of soil fungi effectively take up carbon monoxide from the atmosphere and that continuous exposure of soil to carbon monoxide induces an even greater capacity for absorption. It has also been demonstrated that the soil bacteria consume hydrocarbons such as ethylene and that soil effectively removes sulfur dioxide from the air. Lead has also been found to be rapidly immobilized by soil and studies have shown that lead concentrations in soil are directly related to the distance from the highway. Lead binds to soil while leaching downward and once bound does not represent a threat to plants or to wildlife. Aside from net oxygen production, vegetation has also been found to effectively remove pollutants such as hydrogen fluoride, sulfur dioxide, chlorine, nitrogen dioxide, ozone, and peroxyacetyl nitrate (PAN), a photochemical product. In light of current research on the importance of both soil and vegetation as "sinks" for pollution constituents, the open land close to State Highway 17 and U.S. Highway 101 and at the mouth of the heavily populated San Rafael Basin assumes some importance.

2.11. **Hydrology.** Subsurface geologic conditions in the area of the San Quentin Disposal site do not afford good aquifer basins. Although the water table is close to the ground surface throughout the area, only minor lenses of sand and gravel are present. The predominant Bay Mud and Franciscan Assemblage are relatively poor water sources and the clayey soils in the area, occurring typically in large thicknesses, are virtually impermeable. The Older Bay Mud is stiff to very stiff, firm clay, which contains varying amounts of silt, lenses of sandy clay, sand and gravel.

2.12. **Sand deposits are quite small and very sporadic throughout the area.** These deposits lie over the Older Bay Mud and under the uppermost sedimentary layer of Younger Bay Mud (Cal-Fox, 1974).

2.13. **Flooding.** A tsunami with a runup of 20 feet at the Golden Gate might produce flooding in any of the areas behind the San Rafael levee. Tsunamis of this magnitude are not expected to occur more frequently than once in 200 years, and should be attenuated by over 50 percent at the project site (Kitter and Dupre, 1972).

2.14. **The San Francisco Bay region periodically experiences damaging floods.** In recent years, millions of dollars have been spent to reduce the flood hazard, but the average annual flood damage has not decreased because land development continues to encroach on the flood plains of streams and on the periphery of the Bay. It rarely is economically feasible to protect a flood-plain development from the maximum flood that may occur, and the severe floods that have been experienced in the recent past are not the greatest that can occur. In general, the greatest floods experienced in the region since the turn of the century have

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a probability of being exceeded, on the average once in 40 years. Planning for floodplain management, however, is usually based on the 100-year flood, a flood that has a probability of being exceeded once in 100 years (Limertinos, Lee and Lugo, 1973).

2.15. The San Quentin Disposal Company's sanitary landfill is located within a flood-prone area as identified by the U.S. Geological Survey. That is, it is an area that may be inundated by a 100-year flood.

2.16. The area to the southwest of Highway 17 drains in a northeasterly direction toward Highway 17 with the majority of the area's drainage being carried by an existing channel adjacent to the southwest side of the highway. The water from this channel is presently carried across the highway in three box culverts, and discharges into the low areas northeast of the highway. These areas are protected by the existing dike and a portion of the water discharges into the existing concrete lined channel in East San Rafael. The highway drainage is collected generally in the median areas and also discharges into this channel.

2.17. The East San Rafael Drainage Assessment District #1 has undertaken the installation of a 60-inch storm drain outfall and construction of a storm drain pumping station to alleviate the flooding in the approximately 500-acre natural watershed drainage basin. Approximate location of the pond is shown on Plate 3.

2.18. The drainage system was designed by the City of San Rafael on a 100-year storm return frequency. The maximum storm water elevation in the storage pond would be +3.1 feet MLW with the pumps running and +3.2 feet MLW at the outlet of the State 11' x 5' box culvert under Highway 17. The water surface elevation would be +3.45 feet MLW at the outlet of the State 5' x 5' culvert easterly of the 11' x 5' box culvert. The maximum water surface elevation on the southwest side of the highway would be +3.83 feet MLW at the inlet to the 5' x 5' box culvert westerly of the 11' x 5' box culvert.

2.19. The maximum flow in the main drainage channel leading from the outlet of the 11' x 5' box culvert and a new 72 inch reinforced concrete pipe leading from the most easterly 5' x 5' box culvert to the drainage pond is 188 cubic feet per second (c.f.s.). The maximum flow through the easterly 5' x 5' box culvert is 50 c.f.s. The maximum flow through the 11' x 5' box culvert is 165 c.f.s. The maximum flow through the westerly 5' x 5' box culvert is 111 c.f.s.

2.20. The ultimate elevation of the landfill after settlement would be a minimum of +8.6 feet MLW on the finished floor slab of the buildings and the remainder of the fill would be transitioned to the streets at a minimum gutter grade of +5.6 feet MLW (Calliouette, 1974).

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2.21. The design of the drainage facility was reviewed but not approved by the State Department of Transportation District 4 office. Such approval would require (1) assurance that either the City or the Drainage District will provide adequate operation, maintenance and control of the drainage system being provided by the Drainage District, and (2) data that will support a conclusion that inadequacy of the drainage system does not pose a 1-in-100-year flood threat to Highway 17. The State Department of Transportation has indicated that their preliminary calculations show that the maximum flow rates provided by the City are only about 70% of 1-in-100-year peak flow rates under existing conditions and probably only 50% of peak flow rates under fully developed conditions. The Department also states that since the landfill will be about 8 to 10 feet higher than the original elevations, and at least 1 to 2 feet higher than the lowest portion of Highway 17 in that watershed, the drainage system may be inadequate for the developed conditions.

2.22. **Water Quality.** Water quality at the San Quentin Landfill site is regulated by the State Regional Water Quality Control Board. Disposal is monitored to assure compliance with rules set forth in the board's waste discharge requirements for San Quentin Disposal Company.

2.23. **Geology and Seismicity.** The bedrock in this area consists primarily of graywacke, black shale and slate, greenstone, and chert of the Franciscan Assemblage. The fine grained sedimentary deposits are principally clay and silt, with minor lenses of sand and gravel. The deposits generally are uniform in grain-size and mineralogy throughout their thickness; the major differences between units are the degree of consolidation and stratigraphic position.

2.24. The sedimentary deposits are divided into an Older Bay Mud, sand deposits, and a Younger Bay Mud. The Younger Bay Mud either directly overlies the Franciscan bedrock, or rests upon Older Bay Mud (a firm to stiff silty clay) and sand. In turn, the Older Bay Mud and sand overlie the Franciscan rock. The Younger Bay Mud is loosely consolidated and compressible to relatively great depths. Present information indicates that its thickness within the project site is in excess of 60 feet. The mud itself is a relatively uniform silty clay with low permeability. Minor layers and lenses of sand and shells exist within the mud in several areas.

2.25. No mineral deposits feasible for commercial extraction are known to exist within the project area.

2.26. The City of San Rafael contains no active faults known to be potential sources of earthquakes. The County does lie, however, between two major active fault zones, the San Andreas and Hayward, both of which have generated sizeable tremors.

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2.27. The San Andreas Fault runs just off the southern Marin coastline northward through the Bolinas Lagoon and Tomales Bay. Parallel and approximately 18 miles to the northeast of the San Andreas Fault lies the Hayward Fault. Thus, one of the important causes of damaging effects - proximity to active faults - is well established for Marin County.

Existing Ecosystems

2.28. **Conditions on the site.** There are no unmodified, natural vegetation or habitat areas remaining within the disposal site. In 1956 a levee was constructed to inclose the tideland area located between San Rafael Rock at its northeasterly corner, Point San Quentin on the south, and the Marin County shore on its westerly side. Once the levees were built, tidal waters could no longer flow freely into the area. Much of the former marshland behind the dikes has now been filled, leaving little undisturbed land and none in its original state.

2.29. Currently, the land dries out for three to five months during the summer and in the winter drainage water trapped in the basin becomes a brackish intermittent pond due to salts leaching from the soil. During the rainy season the area receives the runoff from the 500-acre watershed and becomes a manmade ponding area. Water level is maintained at a low level through the use of several discharge pumps which are in continual operation to drain the lower areas on the site.

2.30. The San Quentin Disposal Company has continuously worked most of the 21-acre permit area, removing dirt for use in the landfill operation; consequently, the site supports little vegetation. Because most of the site is only sparsely vegetated, the nesting habitat value of the area must be considered low.

2.31. **Conditions on adjacent land.** The marshes of the San Francisco Bay region are an important station on the Pacific Flyway. In the fall months, migrating waterfowl and shorebirds arrive from the north to rest and feed in the Bay region before resuming their flights southward to Mexico, Central and South America.

2.32. West Marin Island provides an important nesting habitat for numerous birds, probably between 1,200 and 1,300, on the eastern Marin County coast. As the immediate feeding areas (mudflats, marshes, and rain ponds) are insufficient for the quantity of birds present, the effective feeding range during the breeding period extends far beyond the San Rafael City Limits - from Black Point to the north to Tiburon and Sausalito to the south and inland to Corte Madera, Larkspur and Mill Valley. But because the shoreline of San Rafael is the nearest and most easily accessible, it is the most important feeding habitat.

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2.33. The chain of occasionally wet marsh and rain ponds immediately inside the diked and semi-filled area between the San Rafael Canal and Point San Quentin is a very rich area in terms of bird species diversity - at least 75 species of birds have been observed in the area between 1968 and 1975 (See Appendix B). A survey of the area in May 1975 by Audubon Society members gave the following 20 bird species (Starkweather, 1975):

- | | |
|-----------------------|-------------------------------|
| 1. Song sparrow | 11. Willet |
| 2. Barn swallow | 12. Crow |
| 3. Mallard | 13. Ruddy duck |
| 4. House finch | 14. Long-billed dowitcher |
| 5. American goldfinch | 15. Lesser scaup |
| 6. Redwing blackbird | 16. Cinnamon teal |
| 7. Killdeer | 17. Meadow lark |
| 8. Stilt | 18. Great egret |
| 9. Forsters tern | 19. Snowy egret |
| 10. Caspian tern | 20. Black-crowned night heron |

2.34. A variable population of meadow mice inhabit the moist and grassy or meadow-like bay lands. Egrets, herons, short-eared owls, hawks, white-tailed kites and the burrowing owls that live along the banks of levees and drainage ditches hunt extensively over the area. Since raptors, which include hawks, kites, and owls, are all considered potentially endangered due to loss of habitat, the adjoining Bay lands assume great importance as wildlife habitat. Numbers of endangered species which may possibly inhabit the area near or around the San Quentin Disposal Company are: The salt marsh harvest mouse and the California clapper rail.

2.35. The salt marsh harvest mouse was formerly found throughout the extensive marshes once bordering San Francisco Bay. They are now restricted to scattered colonies within their original range and have been placed on both State (CSRA, 1974) and Federal (FWS, 1974) endangered species lists. The salt marsh harvest mouse is protected through provisions in the Endangered Species Act of 1973, 16 USC Sec. 1531 et seq.

2.36. The California clapper rail is a highly specialized, secretive marsh bird seldom seen far from salt marshes. Although its major populations are located in the salt marshes bordering South San Francisco Bay, smaller numbers exist in San Pablo Bay and Elkhorn Slough. Like the salt marsh harvest mouse, the California clapper rail is listed as an endangered species with both the State and Federal Government and is protected through provisions in the Endangered Species Act cited above.

2.37. Although the landfill site itself supports little vegetation, surrounding parcels host plants typical of the area. The East San Rafael Assessment District #1 ponding area, to the northwest of the

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proposed disposal site. Supports salt tolerant vegetation such as pickleweed, saltgrass, alkali heath, and lambs. Virtually no cordgrass has been seen in the area due to the absence of lower elevation zones resulting from the Bay front levee construction.

2.38. The plants which grow along the dikes are adapted to salty soil and drought. They can tolerate infrequent wettings by abnormally high seas, but are usually dry. Here, the plants were found to be mixed rather than in the zones identified around the pond. Fat hen, gum plant, wild oats, star thistle and other species survive in varying numbers along the Bay front levee.

2.39. Throughout the higher areas of the Assessment District, ground-cover plants such as clover and annual and perennial grasses were observed. These plants, in addition to those previously mentioned, are found on the land which lies further to the west and northwest of the site. The twenty acres southwest of the project area are used by the San Quentin Disposal Company in their current landfill operation and support no vegetation.

2.40. The land that lies directly southeast of the Disposal Company is approximately ten feet higher than the adjacent twenty-one acre proposed site. It supports few of the lower zone halophytes (salt tolerant) which are found in other parts of the Assessment District. Thirty percent of the area is covered with grassland vegetation such as curly dock, lupine, wild anise, annual grasses and clover.

2.41. Archeological and Historical Sites. The National Register of Historic Places and the State Historic Preservation Office were consulted to determine whether any sites located within the confines of the landfill are listed or have been nominated for listing as having historical significance. No such sites or potential sites are listed and the possibility of any unrecorded historical resources existing within the project area was investigated through a field visit on 26 April 1974.

2.42. The field investigation was conducted by archeologists of the Treganza Anthropology Museum who concluded that the proposed project would not involve archeological or historical sites and would have no adverse impacts on sites in the San Rafael area (Document A-6 of Appendix A).

Socio-Economic Characteristics.

2.43. Population. San Rafael has a population of over 40,000 and covers an area of 30.17 square miles. Based on the 1970 U.S. Census, San Rafael's population is 18.3% of the 206,000 population of Marin County. Comparison of 1960 and 1970 data indicates that the City of San Rafael has been growing much more rapidly than Marin County. The corrected percent change between 1960 and 1970 was 82% for San Rafael, as compared to approximately 43% for the county as a whole. This corrected value

particularly accessible to the highly-populated central county area. McNees Beach and Park, a County facility, is located across San Rafael Bay only a few miles from the project site by land. This conveniently located 53-acre park at Point San Pedro has swimming, fishing, and picnicking facilities. Future plans include provisions for boating.

2.49. Schools. The project site and surrounding redevelopment area are located within the Marin Community College District and the San Rafael City School District which includes elementary and secondary schools.

2.50. Police and fire protection. Police and fire protection for East San Rafael are provided by the City of San Rafael. The San Rafael Police Department is located in the City Hall, approximately three miles from the San Quentin Disposal Company. Law enforcement on Highway 17 is under the jurisdiction of the California State Highway Patrol.

2.51. Substation No. 4 of the San Rafael Fire Department services the project area and is located in East San Rafael, approximately one mile from the site. It has an engine company with a maximum of four men on duty around the clock. Backup protection for this area is provided by Station No. 2 which is located near San Rafael High School, approximately two miles away. The fire protection in the area is considered adequate.

2.52. Circulation. Access to the San Quentin Disposal Company is via Francisco Boulevard, which is a frontage road parallel to Highway 17. Highway 17 is the State highway crossing the Richmond-San Rafael Bridge and connects the East Bay with Highway 101, the north-south highway, and also gives access to west Marin. The traffic generated by the project is all local in character and does not use Highway 17. There are only three access points to Francisco Boulevard and the balance of East San Rafael. They are located on the south at Point San Quentin, in the middle at Bellan Boulevard and on the north across a bridge over the San Rafael Canal to Grand Avenue.

2.53. Currently about 75,000 vehicles per year use the disposal facilities creating 150,000 trips per year. The heaviest traffic volume by almost two to one is on weekends. A 12 hour total traffic count by the City of San Rafael Public Works Department on June 26, 1973, between the hours of 7 AM and 7 PM, at Francisco and Bellan Boulevard interchange produced the following:

Total traffic circulation	7,428
AM peak time: 11 - 12	750
PM peak time: 4 - 5	699

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excludes any increases in population due to land acquisition, i.e., annexation by the City. The gross change in population between these two dates was almost 90% (Chaplin, 1974). The figures for 1972, obtained from the State Department of Finance, show that the City's population is continuing to grow but at a somewhat slower rate.

2.44. The East San Rafael baylands south of the canal are totally contained in one Census Tract (Tract 1122). The tract is bounded by the Bay on the east, the San Rafael Canal on the north, U.S. Highway 101 on the west, and the San Rafael City limits to the south. East San Rafael's largest age grouping is 18 to 34, with a high concentration of young adults from the ages 20 to 24. There is a corresponding below-average number of minors and elderly, but a high proportion of infants. Residential land uses are now limited to the northern end of the tract near the San Rafael Canal.

2.45. Employment. The low percentage of minors and retired persons corresponds to the high employment rate for males and females over 16, at 90.6% and 84.7%, respectively. The largest employment category, by far, is clerical, for both men and women. The number of young adults in clerical positions is largely dependent on educational attainment. Census data indicate the tract has just below the city-wide median school years completed, slightly below average in having completed four years of college, but numbers above the city average in having some college. This would imply training in post-secondary vocational or business schools rather than academic college programs.

2.46. Housing. The area in the northern part of East San Rafael known as the "canal" area provides twenty-two percent of the City's supply of rental units in the \$120-\$149 rate and almost thirty percent of the next category, \$150-\$199. Median monthly contract rent for the Census Tract area was \$186 in 1970.

2.47. Values of single-family homes (which make up only 8% of the dwellings in the area) showed that in 1970 a majority (58.3%) were in the category of \$50,000+. A primary factor in this high value assessment is the canal frontage enjoyed at this location.

Community Services and Public Utilities.

2.48. Recreation. A variety of recreational opportunities exist for Marin County residents and for those residing outside of the County. The various facilities are operated by Federal, State, County, City, and District Governments and by private organizations. Federally-operated recreation areas include Muir Woods National Monument, Point Reyes National Seashore and Golden Gate National Recreation Area; however, they are not readily accessible to the San Rafael community. State recreational areas such as Angel Island and Mount Tamalpais are also not

2.54. No records have been kept on trip origins but it appears that vehicles are about equally divided arriving and leaving to the north and to the south along Francisco Boulevard. The California State Department of Transportation has applied for a Corps permit to widen and resurface Bellan Boulevard between Highways 101 and 17. This is planned to relieve traffic congestion in the area; however, the application (number 10564-47) is still pending. Ultimate area development at the San Quentin landfill site would depend on sufficient access. There is no current timetable for any future additional freeway connection or overpass (Bernhard, Feb. 1975).

2.55. Sewage. East San Rafael is served by County Sanitary District #1, which collects liquid wastes and transfers them to the treatment facility on the San Quentin Peninsula just northwest of the project site. Since it was built in 1949, the plant has been expanded several times and presently has a capacity for treatment and disposal of a maximum average flow of 4,500,000 gallons per day (4.5 MGD). The current average flow is approximately 4.2 MGD, and the plant provides secondary treatment, with 85 percent removal of biochemical oxygen demand (BOD) and suspended solids.

2.56. The District is currently under a cease-and-desist order issued by the Regional Water Quality Control Board. Removal of this order will require that the District eliminate bypassing of treatment facilities during high rainfall periods when flows become excessive due to infiltration. This problem is a result of leakage of groundwater into the system which increases the flow and decreases the available capacity. Additional connections to the lines may be made as the facilities are improved or infiltration reduced.

2.57. District No. 1 anticipates that their treatment facilities will be consolidated with that of San Rafael by 1976. Treatment would be secondary, with 90 percent removal of BOD and suspended solids through filtration. San Rafael Sanitary District facilities (main plant) have a design capacity of 5.0 MGD and a current average flow of 3.3 MGD.

2.58. Water supply. San Rafael is served by the Marin Municipal Water District. The District has an existing storage capacity of approximately 52,400 acre-feet of water in their five reservoir lakes in central Marin County. Based on an analysis of past rainfall and watershed yields, these reservoirs have a safe annual net yield of 26,000 acre-feet (Marin Municipal Water District, 1973).

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3.00. RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS

3.01. Association of Bay Area Governments (ABAG). ABAG is a voluntary council of local governments formed to meet regional problems by cooperative action of cities and counties. All 92 cities and 8 counties in the San Francisco Bay Area can be voting members. Currently 84 cities and 7 counties (including San Rafael and Marin County) are members. ABAG works toward solutions to regional problems and it is the area-wide comprehensive planning agency for the Bay Region.

3.02. ABAG's Regional Plan 1970/1990 for the San Francisco Bay Region was approved by the Association's General Assembly on 30 July 1970. Unlike the general plan adopted by cities and counties, this Regional Plan will not be used as the basis for any detailed application of policy on a parcel-by-parcel basis, as in the making of zoning or subdivision regulations. Rather, the Plan provides regional policy guidelines to encourage actions by appropriate agencies that will initiate, direct, and promote regional growth and development as well as conservation of the environment; to clarify at all levels the decision-making process related to area-wide problems and issues; and to continue the development of the Regional Planning Framework as a guide to regional planning in the future.

3.03. This Regional Plan designates the San Rafael Baylands and Highway 17 corridor into San Rafael potentially as developed space providing predominantly basic employment. As such, it should be a major factor in achieving balanced community development, minimizing excessive home-to-work travel, and guiding urban growth into the communities of a City-Centered Bay Region (ABAG, 1970).

3.04. Marin County. The Marin Countywide Plan was adopted by the Marin County Board of Supervisors on 30 October 1973. State law now requires that general plans be consistent with zoning and other regulatory measures. The law specifies that an adopted plan represent official public policy which must shape development approval and other government actions.

3.05. The three stated basic goals of this Plan are to: (1) discourage rapid or disruptive population growth, but encourage social and economic diversity within communities and in the county as a whole; (2) achieve greater economic balance for Marin County by increasing the number of jobs and the supply of housing for people who will hold them, thus becoming more self-sufficient economically by reducing the present heavy reliance on the commute to San Francisco; and (3) achieve high quality in the natural and built environment, through a balanced system of transportation, land use, and open space.

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3.06. The San Rafael Baylands, exclusive of the shoreline strip which has been labeled as urban open space, is designated as a developable area. As such, it could develop eventually as an industrial, commercial or mixed land use area. The Marin County planning staff has studied the idea of water-oriented activity centers, involving recreation, residential and commercial land use clusters.

3.07. It should be noted that while the Countywide Plan is binding to unincorporated areas, it serves only to provide guidance to incorporated areas such as San Rafael.

3.08. The City of San Rafael. The City of San Rafael General Plan was adopted in October 1974 and was designed to identify developmental goals of the City. The Plan works with land uses, governmental services and facilities, circulation systems, and community objectives to direct planned and environmentally sound growth.

3.09. The Plan calls for a freeway interchange improvement on Highway 17 between Bellini Boulevard and Point San Quentin. This would provide needed access into the San Rafael Baylands which have been designated as a Business and Industrial Review Area and a Water Oriented Review Area. While the region has been earmarked for industrial development, it is recognized that specific plans and urban design elements are needed (See Paragraph 2.54).

3.10. The Bay side of the site is designated as a Water-Oriented Review Area by the General Plan. "Along the frontage on the Bay, the potential exists for a more dramatic and beneficial use of this site, to create a magnificent new water-oriented and public recreation and open space resource for the community. Waterfront promenades, playing fields, possibly a boat harbor and other open uses would minimize the risk from seismic hazards and differential settlement, and would establish, at last, San Rafael's rightful relationship to the Bay and its shoreline. This area could be used to enhance San Rafael's character as a fascinating place which has captured the full public benefit from its physiographic asset -- its tidelines and shorelines." (San Rafael, 1974).

3.11. The Land Use Policy Map from the General Plan is provided as Plate 4 and shows the two approved land uses for the project area. The water-oriented review area extends approximately 500-600 feet behind the main levee.

3.12. The San Rafael Redevelopment Agency. The proposed disposal site and surrounding Baylands are within the jurisdiction of the San Rafael Redevelopment Agency. This Agency, established in May of 1972, is preparing a plan "to renew and create economic stimulation within this area where government, business, and residential (etc) focus, where

people of the City gather to conduct their affairs, and re-establish the image and awareness of this area as the business and commercial center of San Rafael and Marin County."

3.13. The Agency has completed the third of its four phase planning process with the publication in June 1975 of the Project Area Development Plan Report. This report represents the consultants' findings and recommendations for Central San Rafael. After Phase IV, which will further develop ideas and needs for redevelopment, the community will be consulted for preparation and adoption of a final plan (ROMA, 1975).

3.14. The tentative plan shows the project area in an industrial section with an approximate 150-foot open space strip along the bay-front. The area to the north of the project, including most of the existing drainage pond, is shown on the plan as open space, a possible park. All proposals and plans being formulated reflect a degree of accessibility commensurate with the use, and propose a supplemental road network. If no new roads were to be planned or constructed in this area, then the uses would be curtailed to the present degree of accessibility (Bernhard, April 1975).

3.15. Summary. From this brief discussion of the various plans that concern the area, it is apparent that the proposed landfill is in conformance with regional and local plans.

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4.00. THE PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT

4.01. Impact on Land Use. A major impact on the project site would be the change in land uses. These changes are particularly significant when the conversion is from an open space designation to a usage involving urban development. Since the project would satisfy the local elevation requirements and considering that San Rafael has a need for developable land, the site is under great pressure for development.

4.02. The project would convert an existing open space to a condition which would support a variety of urban land uses. The Draft Countywide Plan states that planning issues in the San Rafael Basin include: "Maintaining a supply of relatively inexpensive commercial and industrial space to help new businesses get started;" "retaining the supply of low and moderate housing;" and "... open space along the Bay Shore south of the canal is essential. It adjoins the County's most densely developed residential area, which now contains inadequate public open space."

4.03. The Central San Rafael Redevelopment Plan, recently published by several consultants for the San Rafael Redevelopment Agency, gives tentative land use designations and definitions for the project area as follows:

a. Industrial - All property adjacent to Highway 17.

b. Open Space - A strip along the shoreline at least 150 feet in from the Bay. North of the project area, a large section is shown as open space; this includes the existing drainage pond adjacent to the project area.

Thus, one important impact of the proposed fill is to enable the City of San Rafael to implement the land uses specified in both the General Plan and the Redevelopment Plan.

4.04. Impact on Noise. Noise conditions at the disposal site should not be altered by the proposed project. Development of the area would increase noise levels as numbers of vehicles to the area increase.

4.05. Impact on Air Quality. As discussed earlier under "Environmental Setting without the Project," under adverse meteorological conditions the site has a relatively high pollution potential. However, the air quality is good and air quality standards are not frequently exceeded because of low emissions and a favorable geographic position upwind of major sources of emissions in the Bay Area. During the fill operation and for the period allowed for settlement there would be no additional impact on the existing air quality (See Paragraphs 2.07-2.09).

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4.06. The problem of assessing the impact of future development on local air quality is a more difficult one. A dispersion model was required to predict the effect of an inventory of emission sources on the pattern of concentrations monitored by the receptor. Unfortunately, few mathematical models developed to date perform satisfactorily under those extreme meteorological conditions which produce the more acute air pollution problems.

4.07. A series of recently-developed models was obtained from the Bay Area Air Pollution Control District (BAAPCD). While the use of deterministic modeling techniques does not guarantee useful results, efforts must be made to closely predict the effects of different land uses on ambient conditions. From a group of nine, two models were chosen, one for a small area source located near the receptor and the second for a line source with the receptor located longitudinally. The area source simulated the 21-acre fill parcel with its internal circulation and the line source simulated circulation to and from the project area.

4.08. The methodology used in determining the impacts is outlined in Appendix C. These results indicate that the component of air contaminants contributed by the development of the 21-acre fill area is extremely small. Even those assumptions cited, such as low wind speed, are generally for a worst-case condition. This modeling indicates that no pollutant species generated from the project site would cause the ambient air quality to exceed the Federal or State standards.

4.09. **Impact on Water Quality.** The system of cells designed for the landfill will prevent runoff or leaching of water into the San Rafael Bay. The low permeability of the Bay Mud should provide adequate protection from migration of contaminants from the refuse fills into the groundwater or adjacent surface water. Water quality degradation is further determined by the type of landfill, and this being Class II site with Group 3 materials, little potential exists for contamination.

4.10. The proposed height of the dikes would preclude any overtopping by floods. A tsunami would have no effect at low tide because of the height of the levee above mean higher high water. Only if the tsunami arrived in its 200 to 300 year cycle on a high tide would there be danger of the wave topping the levee. Each foot of wave would be dissipated in one hundred feet of horizontal surface. The project area begins 100 feet back from the shore line and will have a shoreward elevation at least 6 feet final elevation above the levee. Therefore, the danger of damage from a tsunami is not a factor (Bernhard, Feb. 1975).

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4.11. The quantity of urban runoff can be expected to increase as a result of development within the project site. The drainage and flood control measures mentioned earlier have been designed and constructed in such a manner that existing upstream properties (i.e., to the west of Highway 17) as well as property being filled would be protected from flooding.

4.12. **Impact on Geology and Seismicity.** The major problem associated with development of sanitary landfills and which has the most serious bearing on land use planning is that of settlement. This problem is due to the presence of weak, compressible soils which underlie all of the Bay lands of San Rafael. Development of these areas requires (or has required) placement of fill. In his testimony given at hearings conducted by the District Engineer (Department of the Army, 5 June 1973), Michael Prassker, of the firm of Lee and Prassker, Consulting Engineers, outlined various problems associated with construction of bayfills. One problem with filled mud is the mode of loading. End dumping (deposited by trucks) is "about the worst thing that can happen" in filling over mud. This contrasts with dredged fill, where fill is pumped out and gradually builds up over an area. End dumping causes the fill to go down in one place and push up in another, resulting in a wavy contact surface between mud and fill.

4.13. Another problem with filling over Bay Mud is associated with the rate of loading. Mud, if it has to be loaded or filled, must be filled gradually. If the fill was limited to no more than three feet per year, then the mud will settle vertically in an even manner.

4.14. Developments requiring the placement of fill over Bay Mud will undoubtedly cause settlement or sometimes even failure of the underlying ground. When fills are placed over thick Bay Mud deposits, relatively great settlements take place, often going on for periods as long as 100 years (although most of the settlement takes place within the first few years). Where great differences in thickness of the mud exist over short lateral distances, differential settlement can be a problem. If, for example, the site is underlain by as much as 100 feet of Younger Bay Mud, the fill placed on top of the mud would settle significantly over a period of many decades. The total settlement would be quite large; a thickness of ten feet of fill, for example would eventually settle on the order of five or six feet (Sedbury/Cooke, 1973).

4.15. San Quentin Disposal Company uses a method of surcharging to accelerate the initial subsidence of the underlying mud. This is done by stockpiling debris and surplus dirt on top of filled cells which have been compacted to a density of 2,200 pounds per cubic yard.

4.16. Tests which have been conducted on the "old" San Quentin Disposal site over the past 10 years, by Harding-Lawson Associates, show that the greatest subsidence, in both the debris and underlying mud, occurs within the first three to five years. According to the soils engineers the land has to "sit" from three to five years after a section of fill is complete and deceleration of subsidence must occur before it can be developed.

4.17. Development of the land would not begin for another five years. Since the land is proposed to be developed in increments, it is conceivable that the 21-acre permit area would not be developed for another ten years because the area would be among the final stages of any project.

4.18. Methods are available to control the rate of settlement and otherwise minimize the effects on structures, utilities, and other site developments. Many Bay fill projects which have been carried out using these techniques have performed satisfactorily. However, extensive investigations are necessary at the outset of such a project, and satisfactory performance can be reasonably expected only if the entire project is carried out in accordance with a well conceived technical plan. Even after placement of a satisfactory fill, special, often expensive measures are required for the foundation support of many types of buildings.

4.19. The site is located approximately half way between the San Andreas and Hayward Faults, both of which are active, and frequently exhibit seismic activity. During an earthquake no part of the area would be free from the effects of shaking. Here, as in the entire San Francisco Bay Area and northern California, seismic events are unavoidable.

4.20. The impact or intensity of earthquakes on this site would depend on the magnitude of the earthquake, the nearness of the earthquake epicenter to the property, the geology of the region, and the bedrock, soil, and groundwater conditions at the site.

4.21. The Bay Mud under the levee is continually subjected to shear stresses (even in the absence of seismic activity) because of the weight of the levee itself and the influence of any retained fill. Under static conditions, these shear stresses present no problem because the relative shear strength of the underlying Bay Mud is adequate to withstand them. During an earthquake, however, the shaking action imposes additional "dynamic" shear stresses in addition to the existing static stresses. The sum of these stresses may exceed the strength of the underlying Bay Mud and outward movements of the levee can be expected at this time. Because of the cyclic nature of seismic motions, the combined stresses exceed the soil strength for only short intermittent periods. Thus, the total movement during an earthquake consists of the sum of several discrete movements generated throughout the event.

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4.22. During intense earthquakes, the proposed sanitary landfill may be expected to settle rather suddenly due to acceleration loadings. Also, some failure of the levee due to liquefaction and/or lateral spreading phenomena may be anticipated. In spite of the absence of sandy lenses, liquefaction may occur due to the saturated silty layers found throughout the site. These silty soils can be expected to respond similarly to saturated sandy soils under seismic loading.

4.23. Ground shaking may be characterized by three basic parameters: maximum acceleration, predominant period, and duration. The duration of a major earthquake at the site can be on the order of one minute and will be significantly affected by local soil conditions. For the zone containing the project site, approximate maximum ground acceleration and the predominant period of the soil deposits have been computed. The computed maximum ground acceleration for the site is 0.36g and is low when compared with the range of values computed for the City of San Rafael as a whole (0.35g to 0.75g). The computed predominant period of soil deposits on the site is 2.5 seconds and is high when compared with the range of values computed for the entire City (0.15 sec. to 2.5 sec.).

4.24. The potential for damage to structures increases with an increase in maximum acceleration and duration. The effect of the predominant period on the potential for building damage depends on the vibration or resonant characteristics of the buildings. If a building is subjected at its base to a series of vibrations having the same period as the natural frequency of the building, large deflections and forces can develop within the building. On the other hand, if the same building is subjected to base vibrations having a period markedly different from its resonant frequency, comparatively small forces will be induced in the building (Cooper, Clark and Associates, 1973).

4.25. Because of the engineering of San Quentin Disposal Company's landfill operation, the possibility of ground breakage during a seismic event anywhere within the site is extremely remote. Compacted debris fill, when properly engineered, forms an interwoven mat of homogeneous material that is less likely to react to shear stresses in times of earthquakes. In fact, because of the interwoven effect it can be expected to span ground ruptures or cracks that may be caused in the underlying mud. Due to the differences of plasticity and moisture content in the filled land, much of the ground shaking effect may be absorbed by the fill.

4.26. **Impact of Ecosystems.** The continuation of the fill would result in the loss of about 21 acres of potential wetlands. Benthic productivity is extremely low throughout the site and only in the southeasterly corner has a viable ecological community remained. This one location does provide a small amount of food, but the impoundment has reduced its productivity far below that of natural marsh subject to normal tidal flushing.

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4.27. Completion of the proposed fill project over the remaining 21 acres would eliminate some habitat for waterfowl, which is primarily a resting area rather than a food source. However, the balance of the San Rafael Baylands are an important feeding area for the numerous birds which nest on the Marin Islands. The northern shore of San Rafael (from McNears Beach north), although far less developed than the south shore, harbors fewer birds than do the south and east shores. This may be due to the exposed nature of the shoreline or the more favorable topographic "pockets" provided by San Rafael Bay. Some animals would also be displaced, although it should be noted that these populations have already been reduced substantially by the low productivity of the area due to constant drainage of the area and excavation of plant growth by San Quentin Disposal Company.

4.28. No open marshlands exist adjacent to or near the landfill site. While these lands were once tidal flats, urban development and the processes of diking and filling have almost totally eliminated marshlands within the City of San Rafael. Natural salt marshes are known to be one of the most productive natural areas of the world. In San Francisco Bay, there remain about 75 square miles of marsh, less than one-fourth the marshland that originally existed (Harvey 1966). Comparison between the region in 1853 (Plate 5) and 1968 (Plate 2), shows that a significant decrease of marsh in the site vicinity has taken place.

4.29. Socio-economic impacts. Short-run impacts of the continued landfill would be slight if they exist. Since the landfill is a continuing project, there would be little or no employment changes. The present work force is adequate for the landfill at present and no increase in the rate of filling is anticipated.

4.30. Long-range impacts on employment and the local population could be significant, though these developments are not anticipated to occur in any degree within the next five to ten years. These changes, if in conformance with the San Rafael General Plan, might result in the addition of large numbers of jobs. However, the actual number of positions to be generated cannot be estimated at this time due to great differences in the labor and capital requirements for individual industries. It is likely though that enterprises settling in the area would be basic as opposed to service industries and would add considerably to the tax base of the City of San Rafael.

4.31. Since the General Plan does not specify any residential land uses on the Bay lands in the vicinity of the San Quentin Disposal Company, the project is not anticipated to alter the present social profile of East San Rafael.

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Impact on Community Services and Utilities.

4.32. Recreation. The San Rafael General Plan specifies that any detailed development plans for the Baylands "should make ample provisions for public water-oriented open space and recreation uses, and should set forth very stringent design and landscaping standards, particularly along the freeway." In the existing state these goals cannot be attained. Therefore, with respect to General Plan goals, the impact of the proposed fill will be to enable the City to implement its plans for providing recreational resources for the San Rafael community.

4.33. Schools. There are no residential areas or schools presently within the East San Rafael Drainage Assessment District #1. Since residential land uses are not specified on any of the parcels near the landfill site, it is doubtful that there will be any impact on the local school system. Consequently, the issues of increased enrollment, additional busing and school capacities will not be influenced by the proposed project.

4.34. Police and fire protection. As stated earlier in paragraphs 2.50 and 2.51, the site is protected by the City of San Rafael Police Department. No additional manpower requirements are expected, since no unusual traffic problems requiring additional personnel are anticipated. Fire protection is considered adequate and the landfill is not expected to have any appreciable impact on this service.

4.35. Circulation. There should be no increased circulation problems as a direct result of the landfill. As a continuing project no appreciable change from existing conditions should be expected.

4.36. Any circulation problems which may occur after the project area is completed should be alleviated by the plan to improve traffic circulation at the Francisco and Bellam Boulevards interchange as well as the Bellam and Jacoby Streets intersection. Development of the filled area could cause increased traffic pressure on existing roads. Expected development of the area would be impossible without access to the area. The Applicant expects the City of San Rafael to provide needed circulation routes (Bernhard, April 1975).

4.37. Water supply. The water supply system on the site is adequate for the completion of the project. The total additional water demand for any future development is not assessable without specific plans. In June 1973 the Marin Municipal Water District's Board of Directors passed an ordinance prohibiting new pipeline extensions to the District's distribution system unless a Pipeline Extension Agreement had been approved by the Board prior to 30 April 1973. In March 1974 this water moratorium was ruled illegal. The judge ruled that the District had no

jurisdiction or powers in the field of zoning, land use, density, or population control. In addition, he found that when the District directors declared a threatened water shortage in April 1973, they had a right to impose measures to limit water use. Only if an actual emergency water shortage existed could the District have banned new pipeline extensions, and no such condition existed (Neven, 1974). The decision that the water moratorium is illegal has been appealed to a higher court. By June 1975 no ruling has been made.

4.38. The impact these events will have on any developments in the San Rafael Baylands (possibly 10 years in the future) cannot be assessed. However, there remains the fact that the Marin Municipal Water District is currently experiencing some difficulty in satisfying local water demand.

4.39. Sewage. Without specific development plans, and taking into consideration the time horizon (possibly ten years) for Baylands development, it is not possible to predict impacts on the County Sanitary District.

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5.00. ANY PROBABLY ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

5.01. The major degradation of the area occurred when the San Rafael Levee was constructed in 1956, before the preservation of bay and shore habitat became a major concern and before laws had been enacted to provide for such preservation. Since then, filling operations have eliminated once-productive marshland and habitat values are only a fraction of what they originally were.

5.02. Continued truck traffic through East San Rafael will produce noise and air emissions. Once the Baylands are developed, further degradation of air quality can be expected.

5.03. Although the site presently supports little or no wildlife, continued fill and ensuing development amount to an irreversible action. Since the landfill is adjacent to the San Rafael Levee, it is conceivable that the levee could be breached to reintroduce tidal flushing onto the 21-acre site. However, much of the former tidal marshes behind the levee have already been filled and breaching of the levee would not necessarily result in the land returning to its original state.

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6.00 ALTERNATIVES TO THE PROPOSED ACTION

6.01. The two alternatives available to the Corps on the permit application from the San Quentin Disposal Company are either to grant or deny the permit. The impacts from granting the permit are discussed in other sections of this Environmental Statement.

6.02. With no fill, the project site might well be incorporated in the City's or County's open space lands. However, the land is expensive, provisions for maintenance and supervision would have to be made, and the current plans designate this area as industrial with a 150-200 foot (Redevelopment Plan) or 500-600 foot (San Rafael General Plan) open space strip along the shoreline. The denial of permit alternative would result in the loss of anticipated tax revenues which could be used to meet payments on the General Obligation Bonds against the City of San Rafael for the East San Rafael Drainage Assessment District #1. Fiscal advantages to the City and other local taxing bodies would be substantially greater under the fill alternative.

6.03. Should the area be retained as open space lands, its value as a wildlife habitat could be improved through certain mitigative measures. While habitat ratings are now very low, termination of all activity on the site in addition to re-establishing tidal action could greatly improve its value as habitat. The removal of dikes could allow water contamination. Such a situation would have to be remedied by the placement of an impermeable cap and cover on the outboard side of the existing fill. This action would also require a permit and would involve the loss of a portion of the 21-acre site.

6.04. In order to make the 21-acre area usable as an open space recreation area, active or passive, access would have to be provided. Because the current elevation of the area is now three to five feet below mean lower low water, it could not be adapted as a marsh area but only as open water area. There would be water covering the area even at low tide. If the area was placed in permanent open space, no utilities would be required, but some service and maintenance would be necessary if public access were provided. However, the area would be removed from the Drainage Assessment District. The circulation patterns would probably be the same with scheduled improvements of intersections unchanged. There is no way of determining if there would be any increase in wildlife because of the hundreds of adjacent acres now in comparable open water (Bernhard, Feb 1975).

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7.00. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

7.01. The long-term gradual destruction of the marshes of San Francisco Bay has resulted in a greatly increased value of any actual or potential habitat. Man's short-term use of even marginal marshland habitat for urban development will result in further negative pressures on wildlife. The hydrologic and water quality impacts, as anticipated with the fill and its later development, when examined alone, would not appear to have a significant effect on long-term productivity. The indirect effect of hydrologic and water quality changes on the local ecosystem, as manifested in the loss of waterways and wet marsh, cannot help but be significant in the dynamics of energy flow and gross productivity. This is already evidenced in the project area, which has been cut off from tidal action since 1956, and the once highly productive salt marshes have been partially filled and allowed to degenerate.

7.02. The U.S. Department of Commerce conducted a survey which indicated that 75% of all previously existing marsh area of the San Francisco Bay Region had been filled by 1959 (USDC, 1959). Continued development of the tidelands will leave fewer areas for use by wildlife. Although the project area is not presently a tidal marsh, it still contains some marsh vegetation and provides valuable open space habitat for wildlife.

7.03. Certain benefits could evolve, however, if the project were carried out. San Rafael would be provided with a large continuous strip of undeveloped land, a resource the City hopes would evolve into a strong tax base. Both the City of San Rafael and the County have specified the development of these Baylands with the ultimate goal of balancing the economy of the County. A larger number of basic industries would serve to reduce the dependence of the County on San Francisco for its economy.

7.04. The landfill would have a long-term growth-induced impact on the area. It would encourage the development of a region which has so far been bypassed by urban growth. The development would produce a greater demand on utilities and public services. Vehicular travel would increase with a concomitant rise in air pollution.

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8.00. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

8.01. Filling the remaining 21 acres of the San Quentin Disposal Company's landfill would not destroy a significant wildlife habitat. However, if the levee was breached, the area could be considered potentially productive and the loss of this potential would be significant. Former tidelands committed to fill and later development cannot be retrieved.

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9.00. COORDINATION AND COMMENTS AND RESPONSES

9.01. **Public Participation.** The application for a Department of the Army permit by the San Quentin Disposal Company was first announced by the San Francisco District in Public Notice 74-0-8, 27 July 1973 (Document A-2, Appendix A). The Public Notice was later reissued as PN 74-0-9(a), 8 August 1973, to clarify two of the drawings (Document A-3, Appendix A). In accordance with Department of the Army regulations, comments were solicited from the general public as well as from Federal, State and local agencies. Current regulations state that "...public hearings will be held upon written request whenever the District Engineer determines that there is sufficient public interest to warrant such action" (Department of the Army, 1975).

9.02. **Government Agencies.** Comments on the Public Notice are required from the U.S. Environmental Protection Agency, U.S. Department of the Interior, U.S. Department of Commerce, and the California State Resources Agency. Briefly, the Department of Commerce has no objections to the issuance of the fill permit. The Department of the Interior, Fish and Wildlife Service, sees the former tideland area as important; it feels the land should be kept in the natural state for fish and wildlife, open space, and study. Department of Fish and Game of the California Resources Agency also sees the area as important for fish and wildlife, and recommends mitigation for area loss. Caltrans of the California Resources Agency stated that loss of ponding area for floodwaters could increase Highway 17 flooding. Environmental Protection Agency did not comment on the Public Notice pending preparation of an Environmental Statement.

9.03. When it was determined that an Environmental Statement would be required prior to administrative action on the fill permit application, it was decided to use the Environmental Impact Report (EIR) prepared by Cal-Pox, Inc. (1974) as the document on which to base the statement. Comments received on the Public Notice and the EIR resulted in revision, rewrite, and coordination culminating in the Draft Environmental Statement.

9.04. Comments on the Draft Environmental Statement were received from the following agencies:

U.S. Department of Agriculture
U.S. Department of Commerce
U.S. Department of Health, Education and Welfare
U.S. Department of the Interior
U.S. Department of Transportation
U.S. Environmental Protection Agency
Advisory Council on Historic Preservation
State of California
Department of Transportation
Department of Fish and Game
Department of Health
State Solid Waste Management

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9.05. Comments received from the various agencies and appropriate responses are summarized below.

9.06. Citizen Groups. The major interests indicated in comments received on the Public Notice announcing the proposed project were the potential loss of wildlife habitat, the need for mitigation, the request to wait for the Redevelopment Agency to decide what it plans for the area. One response stated "no objection" for the proposed project.

9.07. No comments were received from any group or individual about the Draft Environmental Statement.

Comments and Responses

9.08. General. The questions and issues raised in the Draft Environmental Statement are summarized and responded to in this Section. Some of the reviewers raised the same or very similar points, which have been responded to collectively. For ease in reference to pertinent parts of this report, the questions and issues generally follow the topical outline of this report.

9.09. If the comment requires a change in the main text of this Statement, the paragraph changed is referenced in the response.

9.10. Copies of all correspondence received in response to the Draft Environmental Statement are found in Appendix D.

Comment by: U.S. Department of the Interior.

Comment: There is an inconsistency in referencing land use plans for the area (Paragraphs 1.02, 4.31, 6.02 and Pages A-1, paragraph 3, and A-2, last Paragraph).

Response: Since the application of May 23, 1973 (Document A-1, Appendix A), the San Rafael General Plan has been revised so that part of the proposed 21-acre fill is in industrial and part in open space plans (Paragraphs 3.08ff). The general plan does not include residential uses in the San Quentin Disposal Co. landfill area (Paragraph 4.31). The revised Redevelopment Plan has not been finalized; however, the most recent suggestion from the Redevelopment Agency's consultants is to leave 150 to 200 feet of open space along the Bay and to provide public access to the area. The applicant still expects to use as much filled land as possible for light industrial development (Paragraph 1.02).

Comment by: State Department of Fish and Game
U.S. Department of the Interior

Comment: Discuss ways to reduce or compensate for the project's impact on natural resources.

3-30

Response: Paragraphs 1.06 through 1.08 have been added to note proposals for compensation of lost wildlife habitat.

9.12. Concerns related to environmental setting

Comment by: State Department of Transportation

Comment: Paragraph 2.21, first sentence, should be amplified as noted in the memorandum.

Response: The second sentence of Paragraph 2.21 has the suggested additions.

Comment by: U.S. Department of Transportation

Comment: Give traffic volumes generated by the project on Highway 17 and interchanges at Bellan and Francisco Boulevards. Also give timetable for road improvements.

Response: Paragraphs 2.52 through 2.54 have been revised to include this information.

9.13. Concerns related to land use plans

Comment by: State Solid Waste Management Board

Comment: Coordinate waste disposal with Marin County solid waste management plans.

Response: The Marin County Board of Supervisors appointed a Solid Waste Committee, assigned them the task of coming up with a plan. With the help of their consultants Garretson-Elmendorf-Zinovev-Reibin, a survey and plan was completed. This plan recognizes the present and future role of San Quentin Disposal Site in the Marin County Solid Waste picture and is indeed encompassed within it. The Solid Waste Plan has not yet been adopted by the Marin County Board of Supervisors (Bernhard, April 1975).

Comment by: U.S. Department of the Interior

Comment: Discuss that recreational use (Paragraph 3.10) would be contingent on area accessibility to potential users.

Response: Paragraph 3.14 has been added to note area use and accessibility.

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Comment by: U.S. Department of Commerce

Comment: A number of tidal bench marks are located in the Point San Quentin area. National Ocean Survey (NOS) recommends that funding for this project include the cost of any relocation required for NOS monuments and marks.

Response: The proposed project does not seem to be in any of the bench mark areas listed in the Department of Commerce letter.

9.14. Concerns related to environmental impacts

Comment by: State Department of Transportation

Comment: Also include an evaluation of the adequacy of the drainage system and flood control measures to protect Highway 17 from flooding.

Response: The Drainage Assessment District No. 1, comprised of East San Rafael property owners, has paid for a storm drainage system, since turned over to the City for operation and control. According to the Director of Public Works, "the storm drainage system must operate to protect large areas of low elevation land which has been developed prior to annexing to the City of San Rafael. Highway 17 is at a higher elevation than these low lands and now has a much higher degree of flooding protection than ever provided previously." (Callioutte, 1975).

Comment by: State Department of Fish and Game

Comment: While the report recognizes some of the wildlife values, it does not offer any mitigation plans to compensate for losses of these values.

Response: Although extensive numbers of bird species have been sited in the area (see Appendix B), the applicant does not agree that heavy wildlife use of the 21-acre site occurs during the winter. The Drainage Assessment District permanent ponding area west of the proposed fill site is considered by the applicant to be the area of wildlife (mainly birds) use. In reference to mitigation, the applicant considers the ponding area and bay water habitat outside the main levee compensation enough for lost habitat (Bernhard, April 1975). Also see Paragraph 1.06ff.

Comment by: State Department of Transportation

Comment: An interchange for Highway 17 (Paragraph 4.36) is not planned.

3-32

Response: Reference to an interchange in Paragraph 4.36 has been deleted. If no interchange is to be built, then the City of San Rafael will provide alternate circulation routes (Bernhard, April 1975).

Comment by: U.S. Department of the Interior

Comment: The statement should emphasize the importance of access to the area and define the environmental impact if access is not provided.

Response: Paragraph 4.36 has been expanded to include need for access.

9.15. Concerns related to alternatives

Comment by: Environmental Protection Agency
U.S. Department of the Interior

Comment: The environmental statement should be expanded to include consideration of additional alternatives.

Response: The only two alternatives available to the Corps, as stated in paragraph 6.01, are granting or denying the permit. The other suggested alternatives have been noted in paragraph 1.07. Paragraphs 6.03 and 6.04 discuss the reestablishment of tidal action to the 21 acres.

Comment by: U.S. Department of the Interior

Comment: Accurately define the portion of the fill area to be reserved for open space or recreation (regarding paragraph 6.02).

Response: Paragraph 6.02 has been changed to note the 150-200 foot open space strip suggested in the tentative San Rafael Redevelopment Agency plan of June 1975. This is considerably less than the 500-600 foot open space area suggested in the General Plan for the City of San Rafael. When finalized, the Redevelopment Plan will be the most current plan for the area.

Comment by: U.S. Department of the Interior

Comment: Acknowledge that undeveloped project habitat would retain value and increase productivity if tidal action is restored.

Response: This has been acknowledged in Paragraph 6.03.

9.16. Concerns about plates

Comment by: U.S. Department of the Interior

3-33

Comments: Plates 1, 2, 4, and 5 need scales. Show proposed project site on Plates 3 and 4. Show mean higher high water elevation on Plate 3.

Response: Changes have been made as requested on all the plates. Plate 5 has been replaced to better show the fill site in relation to former marsh and tidelands.

- Cooper, Clark and Associates, 12 December 1973. Plates for Data Report, Geotechnical Aspects of the Seismic Safety Element for the City of San Rafael. Palo Alto, CA.
- Department of the Army, 10 January 1975. "Proposed Policy, Practice and Procedure for Public Hearings," (33 CFR 209.133)(40 F.R. 2816).
- Duncan and Jones, 10 January 1974. Technical Appendix to the San Rafael Preliminary General Plan. Berkeley, CA.
- Fish and Wildlife Service (FWS), 1974. United States List of Endangered Fauna. U.S. Department of the Interior, Washington, D.C.
- Goss, Joseph, 1972. Solid-Waste Disposal in the San Francisco Bay Francisco Bay. San Jose, CA.
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- Marin Municipal Water District, September 1973. The Russian River Water Supply Project, Draft Environmental Impact Report, Marin Municipal Water District, Larkspur, CA.
- Neven, George, 1974. "Judge Rules Water Connection San Illegal," Independent Journal. San Rafael, CA.
- Ritter and Dupre, 1972. Maps Showing Areas of Potential Inundation by Tsunamis in the San Francisco Bay Region, California: Basic Data Contribution #52. U.S. Geological Survey, Washington, D.C.: Government Printing Office.
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- Bernhard, F.B., 28 February 1975. Letter from Cal-Pox, Inc. to U.S. Army Corps of Engineers, San Francisco District. Subject: Response to comments on Draft.
- _____, 22 April 1975. Letter from Cal-Pox, Inc. to U.S. Army Corps of Engineers, San Francisco District. Subject: Response to additional comments on Draft.
- Caillouette, Ely, 14 June 1974. Letter from Ely Caillouette, San Rafael Director of Public Works, to the District Engineer, U.S. Army Corps of Engineers, San Francisco District. Subject: Design characteristics of facilities in East San Rafael Drainage Assessment District #1. San Rafael, CA.
- _____, 17 April 1975. Letter from City of San Rafael Public Works Director to U.S. Army Corps of Engineers, San Francisco District. Subject: East San Rafael storm drainage system.
- California State Resources Agency (CSRA), 1974. At the Crossroads, 1974, A Report on California's Endangered and Rare Fish and Wildlife. The Resources Agency of California, Sacramento, CA.
- California State Water Resources Control Board, 2 March 1973. Order Adopting and Repealing Regulations of the State Water Resources Control Board: Subchapter 15. Waste Disposal to Land. Sacramento, CA.
- Cal-Pox, Inc., January 1974. Environmental Impact Report: San Quentin Disposal Company. Sausalito, CA.
- Champlin, Ed, September 1974. Conversation with Ed Champlin on 19 September 1974. California State Department of Human Resources Development.

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- Sedway/Cooke, 5 February 1973. Environmental Impact Report, Corte Madera Redevelopment Project Area No. 1 Redevelopment Plan. San Francisco, CA.
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APPENDIX J-A
BACKGROUND DOCUMENTS

APPENDIX A
BACKGROUND DOCUMENTS

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A-2	Public Notice 74-0-9	A-5
A-3	Public Notice 74-0-9(a)	A-10
A-4	Letter from the California Department of Parks and Recreation to the U.S. Army Corps of Engineers, San Francisco District, dated 15 March 1974. Subject: Lack of State Historical Landmarks, State Points of Historical Interest, or Sites on the National Register of Historical Places.	A-13
A-5	Letter from the Marin County Historical Society to the U.S. Army Corps of Engineers, San Francisco District, dated 15 May 1974. Subject: Lack of Historical Resources	A-15
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SAN QUENTIN DISPOSAL SITE
P.O. BOX 1186 - SAN RAFAEL, CALIF. 94902

May 23, 1973

The District Engineer
U. S. Army Engineer District
San Francisco Corps of Engineers
100 McAllister Street
San Francisco, California 94102

Re: SAN QUENTIN DISPOSAL SITE - LANDFILL PERMIT

Gentlemen:

Your letter dated 3 November 1972, received 7 November 1972 stated that the Corps of Engineers has jurisdiction over all new work in unfilled portions of interior diked areas below former mean higher high water and that a permit from the Corps of Engineers is required to continue any such new work. A meeting was requested and held 7 November with your Mr. Vernon Smith and Mr. Evan Hong. A letter acknowledging this meeting and asking for additional information was sent 10 November 1972. An additional letter to the Corps of Engineers was sent February 1, 1973, explaining our current progress.

In accordance with your 3 November 1972 letter, we request that a permit be issued to complete the filling of the lands under the control of San Quentin Disposal Co. The applicants do not, by the filing of this application, waive any rights which they may have in the absence of such filing, nor do they concede that the Department of Army, Corps of Engineers, has jurisdiction over this land and its fill project; and applicants reserve all such rights including but not limited to the right to contest said claimed jurisdiction at any future time.

The site is located in the City of San Rafael, County of Marin, California. The land is being filled with earth and refuse, using a compacted sanitary landfill method. After filling, the land will be used in accordance with the General Plan of the City of San Rafael. The General Plan for the City of San Rafael, designates the land uses in this area as planned industrial nearest Highway 17 and residential nearest the water. The City is currently revising the General Plan in conformance with Title 7.

Site Description

The San Quentin Disposal Site is located in the eastern part of the City of San Rafael (Exhibit 1). It is bounded on the north and west by the

DOCUMENT A-1

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East San Rafael Drainage Assessment District #1, on the west and east by the lands of Francisco Co. and on the south by the lands of Ceccotti et al and Dr. H. Norman (Exhibit 2, List of Adjacent Property Owners). The site lies approximately 600 feet east of Francisco Blvd., and is serviced by private road easement until such time as the City of San Rafael General Plan roadway network is implemented. The East San Rafael Drainage Assessment District #1 adjacent to the San Quentin Disposal Site is currently constructing drainage channels, a storage pond, a pump station and force mains in order to provide drainage for approximately 500 acres in East San Rafael. Corps of Engineers Permit Number 72-45, November 27, 1972, Installation of 60 inch Storm Drains Outfall Line and Permit Number 73-39, January 23, 1973, Construction of Storm Water Pump Station. The remainder of the adjacent lands are either undeveloped or partially developed and the owners are waiting the completion of the Drainage Project before development.

The East San Rafael Drainage Assessment District #1 was voted into existence by the City of San Rafael in order to ensure the orderly growth and development of the East San Rafael area and is an assessment under the Improvement Bond Act of 1915.

All areas to be filled are within existing levees and are not subject to tidal action. The area to be filled is generally flat level land ranging in elevation from 96 to 103 feet (Elevation datum throughout this text is based on U.S. Coast and Geodetic Survey Mean Sea Level plus 100 = Elevation 100.00 feet).

The main levee is at elevation 111 to 114 feet and is 18 to 24 feet wide at the top. Interior dikes range in elevation between 106 and 114 feet.

The site is underlain by soft and compressible silty clays commonly referred to as "Bay Mud" and is relatively impervious. The mud depth increases from approximately 50 feet on the west to approximately 80 feet on the east.

Landfill Description

The purpose of the compacted landfill operation is to raise the level of the existing ground to comply with or exceed the standards set forth in the City of San Rafael Elevation Ordinance No. 1049. The purpose is to prevent flooding of the land and provide adequate drainage so that the land can then be used in accordance with the City of San Rafael General Plan.

2.

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The compacted landfill operation consists of excavating cells, filling the cells with debris and dirt - no food garbage or putrescible material is used - and then covering the compacted debris with at least two feet of inert material. The dirt excavated is used to build interior dikes to form cells and to cover the compacted debris in accordance with the City of San Rafael requirements. Dirt is also imported as needed.

Approximately 20 acres are to be filled by San Quentin Disposal Co. Within this area to be filled approximately 2500 feet of dikes have been constructed. Approximately 775,000 yards of refuse and 325,000 yards of dirt will be used to fill this area.

The engineering firm of Harding, Lawson & Associates has been used from the beginning as soils consultants and overall supervising engineers.

Existing Permits

San Quentin Disposal Co. was formerly operating and filling an area about 400 feet south of the present site for 5 years from 1963 to 1968. The present 60 acre site was first started in 1968 after a public hearing before the San Rafael Planning Commission in March of 1968 and a public hearing before the City Council of San Rafael in April 1968. A fill permit was granted to San Quentin Disposal Co. to fill, in successive increments, the 60 acre area.

After the necessary hearings and permits before the City of San Rafael, including the Use Permit, Fill Permit and Public Works Operating Permit, were obtained, the Air Pollution Control Board recommendations were incorporated within the requirements imposed. The San Francisco Regional Water Quality Permit was applied for and obtained - Resolution 69-2. (Exhibit 3)

All State, Regional and Local requirements were met through public hearings and permits.

Since the first permits were obtained, periodic review has been made with the attendant public hearings.

Currently a Use Permit Determination under Section 14.62.04 of the City of San Rafael Zoning Code to permit an industrial park subdivision and commercial-recreational uses for the property is pending before the San Rafael Planning Commission.

San Quentin Disposal Co. operates under a current City of San Rafael

3.

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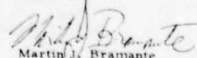
Use Permit No. UP 68-31 (f) and City of San Rafael Department of Public Works, Permit to Operate a Rubbish Dump No. 28 (Pursuant to Ordinance No. 718).

Exhibits

1. Location Map from USGS Maps San Rafael, California, NE/4 Mt. Tamalpais 15-quadrangle, N3752.5 - W12230/75 and San Quentin, California, N3752.5 - W12222.5/7.5
2. List of Adjacent Property Owners
3. San Francisco Regional Water Quality Control Board Resolution 69-2
4. One velum and 3 blue line copies of fill plan

If any additional information is required, please so advise.

Sincerely,


Martin J. Bramante
President
San Quentin Disposal Co.

4.

J-A-4

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
100 McALLISTER STREET
SAN FRANCISCO, CALIFORNIA 94102

PUBLIC NOTICE NO. 74-0-9

TO WHOM IT MAY CONCERN:

27 July 1973

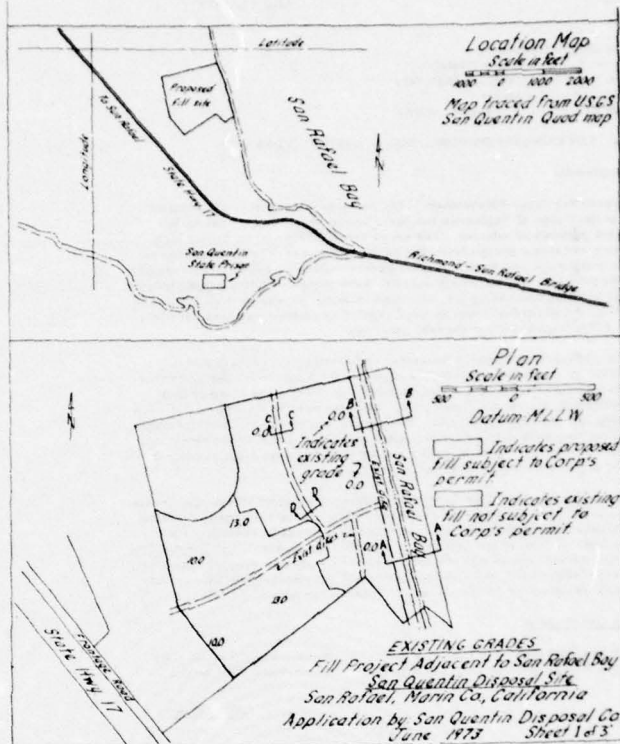
The San Quentin Disposal Company, P.O. Box 2126, San Rafael, California, has applied for a Department of the Army permit to fill approximately 21 acres of land shoreward of dikes previously permitted on San Francisco Bay, approximately one mile north of San Quentin Point, in San Rafael, Marin County, California. The location of the site and details of the fill are shown on the drawings accompanying this notice.

The filling operation would consist of the deposition of approximately 625,000 cubic yards of debris (excluding food garbage or putrescible material) and 275,000 cubic yards of cover material over the debris. The debris would be deposited in excavated cells, with the excavated material being used for interior dikes around the cells and for covering the compacted debris. Additional earth fill would be imported to supplement the excavated material being used for covering the debris. In addition to the 21 acres of fill for which this permit is requested, the applicant has filled or is currently filling an area of approximately 20 acres which is not subject to the Corps' permit jurisdiction. The applicant states that the total area concerned would be developed for planned light industrial and professional services in accordance with the General Plan of the City of San Rafael.

A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining State assent to the work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.

DOCUMENT A-2

J-A-5



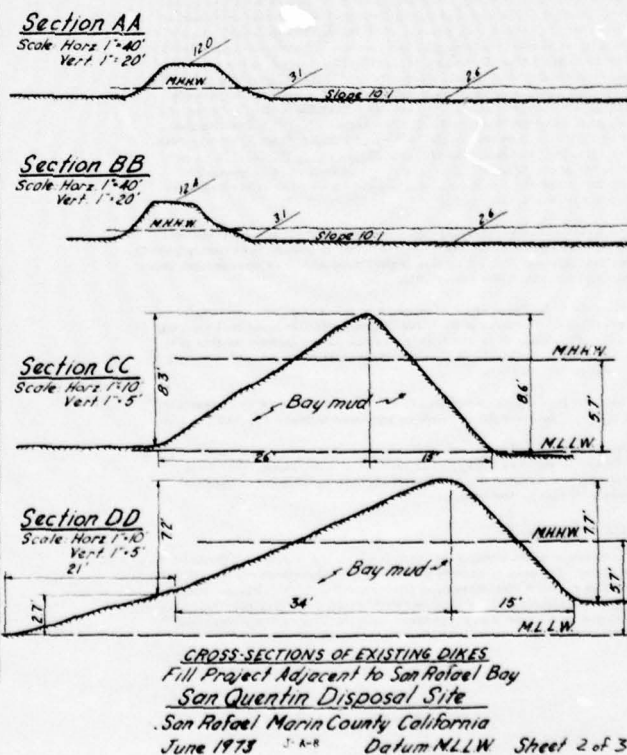
J-A-7

It appears that the nature of the proposed project is such that the preparation of an Environmental Impact Statement (EIS) by the Corps of Engineers may be required before a decision could be made to issue the requested permit.

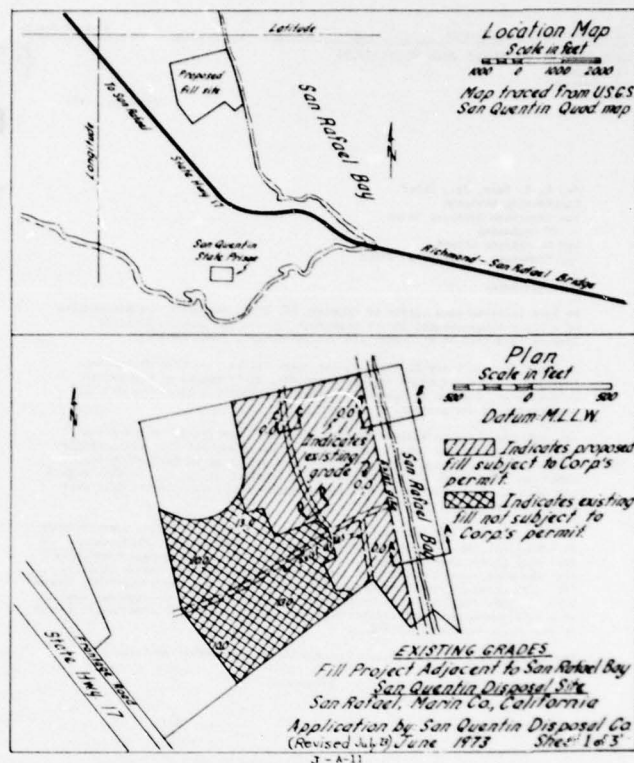
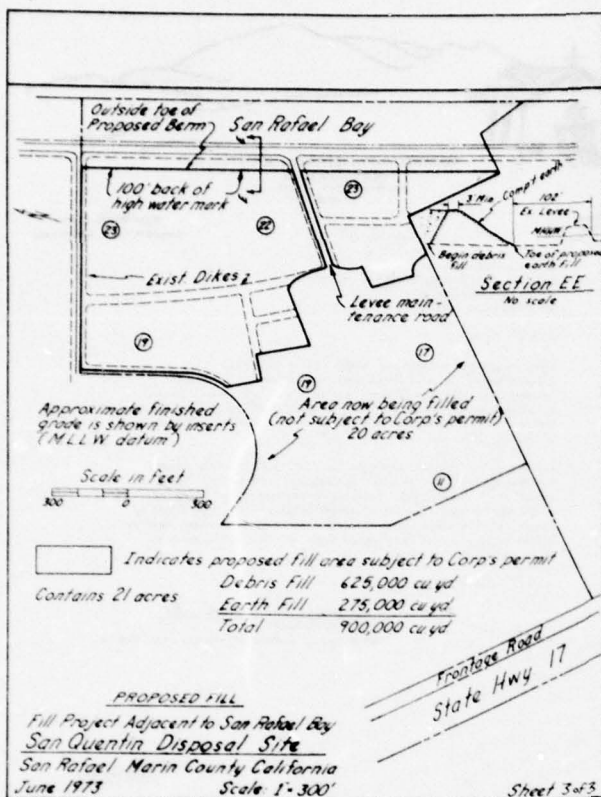
Any person who has an interest which may be adversely affected by the issuance of a Corps of Engineers' permit for the work described in this notice may request a public hearing. The request must be submitted in writing to the District Engineer within thirty (30) days of date of this notice and must clearly set forth the interest which may be adversely affected by the activity.

Interested parties may also submit in writing any objections that they may have to the proposed work. Objections should be forwarded so as to reach this office not later than thirty (30) days from date of this notice.

J. L. LAMMIE
Colonel, CE
District Engineer



CROSS-SECTIONS OF EXISTING DIKES
Fill Project Adjacent to San Rafael Bay
San Quentin Disposal Site
San Rafael, Marin County, California
June 1973 J-A-8 Datum MLLW Sheet 2 of 3



U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
100 MALLISTER STREET
SAN FRANCISCO, CALIFORNIA 94102

PUBLIC NOTICE NO. 74-0-9(a)

TO WHOM IT MAY CONCERN:

8 August 1973

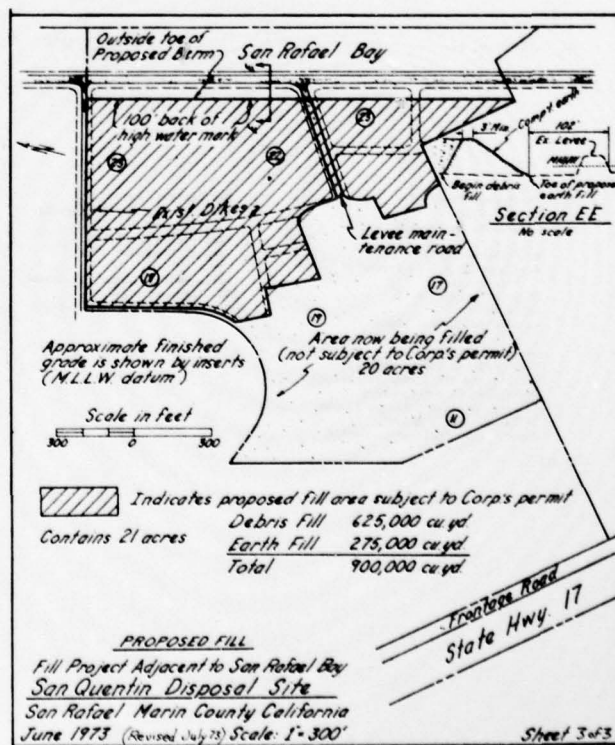
Public Notice No. 74-0-9 issued on 27 July 1973 described the application of the San Quentin Disposal Company, P.O. Box 2126, San Rafael, California, for a Department of the Army permit to fill approximately 21 acres of land seaward of dikes previously permitted on San Francisco Bay, approximately one mile north of San Quentin Point, in San Rafael, Marin County, California.

Sheet 1 and sheet 3 of the drawings in the above described public notice are replaced by the accompanying sheets 1 and 3. The changes on these prints consist only of the addition of cross hatching to indicate certain fill areas.

J. L. LAHYTE
Colonel, CE
District Engineer

DOCUMENT A-1

J-A-10



J-A-12

March 15, 1974



MARIN COUNTY HISTORICAL SOCIETY

1125 B Street at Marin
San Rafael, California 94901
Inc. 1935

Museum Hours:
2:00 to 5:00
M - Sat - Sun

Philip Molteni, Curator
Barbara H. Smith, Asst. Curator

May 15, 1974

Mr. H. E. Pape, Jr., Chief
Engineering Division
San Francisco District Corps
of Engineers
100 McAllister Street
San Francisco, California 94102

Dear Mr. Pape:

We have received your letter of February 28, 1974, regarding the preparation of a Draft Environmental Impact Statement for the San Quentin Disposal Company Land Fill on a 21-acre site in San Rafael, Marin County.

As staff for the State Historic Preservation Officer, we have determined that there are no State Historical Landmarks, State Points of Historical Interest, or sites on the National Register of Historic Places which would be affected by the project.

Although there are no registered historic sites, you should be aware that unrecorded historical values may exist. We would suggest that consideration be given to identifying and safeguarding any potential historical resources which may not be presently recorded on any landmark register. In this regard, you may wish to contact the Marin County Historical Society at 62 Hillcrest Drive, San Rafael, California 94901.

In addition, we would strongly suggest that the sponsor initiate a preliminary archaeological field investigation previous to any actual site disturbance. We feel this is particularly important due to the conviction of some historians that the area was a landing spot during Sir Francis Drake's voyage in 1579. For information regarding archaeological survey work, you may contact Mr. Thomas King, Society for California Archaeology, Archaeological Representative, Department of Anthropology, California State College, Sonoma, 1801 East Cotati Avenue, Rohnert Park, California 94928.

Please feel free to contact us if we may be of any further assistance.

Sincerely,

J-A-13

Russell W. Porter, Chief
Grants and Statewide Studies Division

DOCUMENT A-4

Mr. H. E. Pape, Jr.,
San Francisco District Corps of Engineers
100 McAllister Street
San Francisco, California

Dear Mr. Pape,

After extensive research and several hours of field observation of the site containing the San Quentin Disposal Company Land Fill on a 21-acre site in San Rafael, Marin County, I, George H. Parrish, acting on behalf of the Marin County Historical Society, find no potential historical resources which could be affected by this project.

However, in my opinion, remains on the land, historical in nature and possibly, should be retained by future development of this area. Remains, such as Juan Bautista Cabrera's Cooper and San Joaquin River bridges have left their imprint on this site. The "State of Trance" and the speculative convictions of some historians, such as author H. Starr, that Sir Francis Drake may have landed here in 1579, should not be ignored.

Respectfully submitted,

George H. Parrish
Marin County Historical Society Board Member

2/7/74

DOCUMENT A-5

J-A-15

an e. treganza anthropology museum

SAN FRANCISCO STATE UNIVERSITY
1600 HOLLOMAN AVENUE
SAN FRANCISCO, CALIFORNIA 94132

May 1, 1974

Mr. H. E. Pape, Jr.

-2-

March 15, 1974

F. Bruce Bernhard
San Quentin Disposal Site
P. O. Box 2126
San Rafael, California 94902

Dear Mr. Bernhard,

The following report is submitted to you in response to your April 26 letter authorizing us to conduct an archaeological investigation of the 21-acre site that your company proposes to fill.

This report will, in many respects, direct itself to statements of valuation presented in two letters submitted to the Corp of Engineers, San Francisco District, in which it is strongly suggested that an archaeological field investigation be conducted in supplement to the Draft Environmental Impact Statement which has been prepared by the Cal-Pax, Inc., Consultants in Environmental Systems, Sausalito, California. These two letters, which are both directed to Mr. H. E. Pape, Jr., Chief, Engineering Division, San Francisco Corp of Engineers, are from Mr. Russell W. Porter, Chief, Grants and Statewide Studies Division, State Department of Parks and Recreation (March 15, 1974), and Mr. Bruce M. Kilgore, Associate Regional Director, Western Regional Office, National Park Service (March 29, 1974).

It is our opinion, as suggested by Mr. Porter and Mr. Kilgore in their respective letters, the EIR failed to provide adequate information regarding the project's potential for impacting the archaeological resources of the area. The report provided acceptable background material on the available archaeological data for the general area; however, this summation of material in no way precludes the possibility of the existence of unrecorded archaeological remains in the project area. Therefore, a field reconnaissance was certainly required.

Archaeological Considerations:

On Friday, April 26, an archaeological sites reconnaissance was conducted on the proposed San Quentin Disposal Site. The proposed fill area consists of approximately 21 acres of land shoreward of the main levee on San Rafael Bay, near Point San Quentin, San Rafael, California. The proposed project activities consist of refuse dumping and filling. Prior to the actual fieldwork, maps and records showing the locations of all the known archaeological sites in the area were consulted at the A. E. Treganza Anthropology Museum, San Francisco State University. No known archaeological sites were recorded on the property or in the immediate vicinity of the area in question. The sites referred to on Pages IV-64 and IV-65 of the Environmental Impact Report (4-MRN-79, 4-MRN-80, 4-MRN-10 and 4-MRN-255) would not in any way be impacted by the proposed project activities.

DOCUMENT A-6

RESEARCH

INTERPRETATION

EDUCATION J-A-16

J-A-14

cc: Mr. Robert Power
The But Tree
Vacaville, California 95688

Mr. Robert Garvey
Advisory Council on Historic
Preservation
1522 "A" Street, N. W.
Suite 430
Washington, D. C. 20005

Mr. Thomas King
Archaeological Representative
Society for California Archaeology
Department of Anthropology
California State College, Sonoma
1801 East Cotati Avenue
Rohnert Park, California 94928

Mr. Louis S. Wall
Advisory Council on Historic
Preservation
Post Office Box 25085
Denver, Colorado 80225

Marin County Historical Society
62 Hillcrest Drive
San Rafael, California 94901

0-5/2

The actual survey was conducted by Mr. David Chavez, a candidate for the Master's Degree in Anthropology at San Francisco State University. The project map (Page 11-4, [1R]) which was provided by you, and the standard site survey forms used by the Treganze Museum were utilized during the survey. Upon familiarizing himself with the parameters of the project area, the contents of the Draft Environmental Impact Report, and other pertinent material dealing with the history of the development of the area, Mr. Chavez conducted a general surface reconnaissance on foot.

No visible or surface indications of archaeological remains were encountered within the survey area. Further it is our observation that the area has been so highly disturbed as a result of the construction of the levee and the subsequent filling, and scrapping off of earth, that any potential archaeological remains would have long been destroyed. As suggested in Mr. Kilgore's letter (March 29), the San Francisco Bay does indeed have a high potential for prehistoric cultural resources existing in marshes and under shoreline muds; however, in this particular instance, the high level of disturbance to the area has overwhelmingly minimized the possibility of survival of any such archaeological remains.

Historical Considerations:

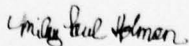
In Mr. Kilgore's letter (March 29) he suggests that the National Register of Historic Places and the State Historic Preservation Office be consulted to determine whether or not any sites are listed, or have been nominated for listing, as being historically significant, which may be within the confines of the project area. It would appear that such considerations have been adequately dealt with, as indicated in Mr. Porter's letter (March 15), and no such historical resources are recorded for the area in question. Regarding the possibility of unrecorded historical resources existing within the project area, as suggested in Mr. Porter's letter, it is further emphasized that no evidence of prehistoric or historic cultural activity was encountered during the field reconnaissance.

Concerning the possibility of Sir Francis Drake having landed in the vicinity of the proposed project area, again, no evidence was encountered during our investigation to give any substance to such a consideration. Perhaps the best summary of research on this issue is to be found in a paper delivered by Dr. Michael Moratto, PhD, San Francisco State University, at the seventh annual meetings of the Society for Historical Archaeology, in January, 1974. In his paper, entitled THE DRAKE CONTROVERSY, Dr. Moratto demonstrates statistically that of the three possible landing sites, Drakes Bay, Bolinas, and Point San Quentin, the chances that Drake landed at Point San Quentin are 1,000 to one against the possibility. Whereas the chances that Drake landed at Drakes Bay are quite good, namely 100,000 to one in favor (Moratto 1974).

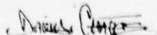
J-A-17

It is our conclusion, therefore, that the filling activities as proposed by the San Quentin Disposal Company for the project area, will have no adverse impacts on the archaeological or historical resources of this general area.

Sincerely,



Miley Paul Holman
Assistant Curator



David Chavez
Consulting Archaeologist

J-A-18

APPENDIX J-B

BIOLOGICAL INVENTORY

APPENDIX 3 - BIOLOGICAL INVENTORY

Common Name
marbled godwit

Common Name	Scientific Name	Resident Status	Abundance in Region	Range in State	Project Impact
Common crow	<i>Corvus brachyrhynchos</i>	permanent	common	wide	minimal
rockingbird	<i>Minio. polyglottos</i>	permanent	uncommon	wide	"
robin	<i>Turdus migratorius</i>	permanent	common	wide	"
weaver spic	<i>Melospiza spodiola</i>	winter visitor	abundant	wide	"
yellow-billed cuckoo	<i>Coccyus erythrophthalmus</i>	winter visitor	common	wide	"
song sparrow	<i>Melospiza melodia</i>	permanent	common	wide	"
louisiana waterthrush	<i>Seiurus nigricans</i>	winter visitor	common	wide	"
baybreast	<i>Parus carolinensis</i>	winter visitor	common	wide	"
weaver sparrow	<i>Melospiza melodia</i>	permanent	uncommon	wide	"
belied kingfisher	<i>Megascops asio</i>	permanent	common	wide	"
crested flycatcher	<i>Empidonax carolinensis</i>	permanent	abundant	wide	"
california quail	<i>Quail californicus</i>	permanent	rare	wide	"
brown towhee	<i>Pipilo fuscus</i>	permanent	abundant	wide	"
harrowing owl	<i>Bubo virginianus</i>	"	uncommon	wide	"
northern owl	<i>Bubo borealis</i>	migrant	uncommon	wide	"
house sparrow	<i>Passer domesticus</i>	migrant	common	wide	"

See page 3-5

Observed with fledglings hatched in area, inside the stand, semi-filled area between the San Rafael

See page B-5

Observed with floodplains hatched in areas inside the dike, semi-filled area between the San Rafael Canal and the Marin Rod and Gun Club pier).

BIOLOGICAL INVENTORY (Cont'd)

Birds seen in the area between August 1968 and May 1975 by Aubrey Burns, Martin Audubon Society member. These are in addition to waterfowl species in pages 8-1 through 8-4 (•). Mr. Burns' list for the area includes 75 bird species.

[illegible]

APPENDIX J-C

AIR QUALITY

AIR QUALITY IMPACTS

A method was needed to assess the impact of additional emission sources on the air quality of San Rafael. A series of dispersion models recently developed and currently being used by scientists was obtained from Richard H. Thullier of the Technical Division of the Bay Area Air Pollution Control District (BAAPCD). These computational techniques are essentially refinements on the methods presented by Turner in the "Workbook of Atmospheric Dispersion Estimates" (EPA, 1970) and later by Thullier in "Air Quality Statistics in Land Use Planning" (BAAPCD, 1973).

Of the group of nine formulas, including five for approximating area impacts and four for approximating line source impacts, two were chosen. The first formula predicts contaminant concentrations for small area sources with centers less than 10 kilometers from the receptor. In this case the small area source represents the internal circulation within the 21 acre developed parcel located 3,500 meters from the receptor. The second formula predicts contaminant concentrations for line sources with the receptor located longitudinally and the wind parallel. In this case the line source simulates emissions from vehicles travelling along Highway 17 to and from the project site.

Fortunately, the San Rafael air sampling station is located not far from East San Rafael and is along the same wind axis as the project site. Vehicle emission rates for 1980 were used with the estimated circulation figures of 1,000 trips per 24 hours. Average trip length is estimated at 0.8 kilometers for the area source and 4.6 kilometers for the line source. Constituent concentrations for the two sources were then summed and added to atmospheric concentrations on a worst-case basis for 1973 and finally compared with current State and Federal standards. The low wind speed of 2 meters per second was assumed and used in the calculations to simulate poor meteorological conditions. Stability category class C was chosen and represents a semi-stable atmospheric condition (daytime, slight incoming solar radiation).

Values for the additional atmospheric contaminant contributions were obtained for carbon monoxide (CO), nitrogen oxides (NO_x), sulfur oxides (SO₂), hydrocarbons (HC), and particulate matter. These values are presented in Table C-1 under "Project 1980." Also presented in the table are the 1973 worst-day species concentrations (1973 Background), the 1973 worst-day plus the 1980 project contribution (Total) and the current most stringent standard, whether State or Federal.

In no case did the additional component of contaminants result in any standard being exceeded. It is also noteworthy that in no case was that part of the contaminant load contributed by the area source even 10% of the total load for a particular constituent. It

TABLE C-1

AIR QUALITY DATA

Pollutant	Project 1980 (mg/m ³)	Background ^a 1973 (mg/m ³)	Total (mg/m ³)	Standard (mg/m ³)
CO	6.40	868	8691.4	10,000 ^b
HC	0.84	-	-	160 ^c
NO _x	0.87	357	358	470 ^d
Particulate	0.17	46	46	60 ^e
SO ₂	0.06	41.7	41.8	260 ^e

- a. Background data reflects maximum annual value attained.
- b. Based on 8-hour averaging time.
- c. Based on 3-hour averaging time (6 to 9 a.m.).
- d. Based on 1-hour averaging time.
- e. Based on 24-hour averaging time.

J-C-1

3-C-3

is assumed from this that the major effect on the air quality by the development of the San Rafael Baylands would not be as a result of circulation within the parcels but due more to traffic to and from the various sites.

It should be noted that estimating methods for nitrogen oxides do not distinguish between nitric oxide and nitrogen dioxide, but give only the total; thus actual concentrations of nitrogen dioxide, on which the standards are based, should be expected to be substantially lower than those shown for the study area.

A similar situation exists with regard to hydrocarbons. The emission estimates include all hydrocarbons, and probably substantial amounts of other organic compounds as well, while the standard is based only on non-methane hydrocarbons. In addition, the standard applies only to concentrations between the hours of 6 and 9 a.m., which introduces further complexities in the predictive methodology. Thus the "Standard" value shown for hydrocarbons should probably be replaced by a question mark in any case it should be substantially higher than the value shown.

REFERENCES

- BAAPCD, June 1972. "Air Quality and Growth in Marin County." A report for, and published by, Marin County Planning Department.
- Environmental Protection Agency, April 1973. Compilation of Air Pollutant Emission Factors. EPA Publication No. AP-42. Research Triangle Park, North Carolina: EPA Office of Air Programs.
- Thullier, R. H., June 1973. "Air Quality Statistics in Land Use Planning Applications." Third Conference on Probability and Statistics in Atmospheric Science, Boulder, Colorado.
- Turner, D. B., 1970. Workbook of Atmospheric Dispersion Estimates. EPA Publication No. AP-26. Research Triangle Park, North Carolina: EPA Office of Air Programs.

J-C-2

APPENDIX K*

Proposed Development
Spinnaker Point Canalways
San Rafael, California

* Appendix K represents a development plan for the Holiday Magic-Herzstein Trust property (reference areas 9, 9A, and 9B Plate 7).

Project:

SPINNACKER POINT CANALWAYS
SAN RAFAEL, CALIFORNIA

Report:

FILING APPLICATION

Client:

STANLEY HERZSTEIN
CLASS ACTION TRUSTEE
SAN FRANCISCO, CALIFORNIA

Date:

JULY 1978

**Willis and
Associates
INC.**

K-1

Willis & Associates Inc. Project Staff:

DAVID E. COLODOFF, A.I.A., Principal
CHRISTOPHER W. RAKER, A.I.A., Project Director
CHARLES THOMPSON, Staff
ELIZABETH M. WEBSTER, Staff
KATE MULLIGAN, Staff

Consultants:

ECONOMICS RESEARCH ASSOCIATES
Economic Consultants

MADRONE ASSOCIATES
Environmental Consultants

OBERKAMPER & ASSOCIATES
Civil Engineer

STERLING K. ATKINSON, E.C., E.G.
Geotechnical Engineer

**Willis and
Associates
INC.**

K-2

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	APPENDIX	

Willis and Associates Inc., 545 Mission Street, San Francisco, California 94105

K-3

List of Additional Graphic and Written Documents**GRAPHIC DOCUMENTS:**

DRAWING NO.	TITLE
1	AERIAL PHOTOGRAPH
2	PHYSIOGRAPHY
3	SITE PLAN
4	SITE SECTIONS
5	GRADING AND UTILITIES

WRITTEN DOCUMENTS:

APPLICATION FORM AND FEE
AUTHORIZATION FORM
ENVIRONMENTAL INFORMATION FORM
WILLIS AND ASSOCIATES INC. LETTER, AUGUST 14, 1978

NOTE:

The written documents above, plus one color-rendered set and the required number of blackline sets of the graphic documents, have been filed with the City of San Rafael in addition to this report.

Willis and Associates Inc., 545 Mission Street, San Francisco, California 94105

K-4

This report supplements the additional graphic and written documents listed previously and completes the inventory of filling materials submitted to the City of San Rafael applying for rezoning of the described lands to a Planned Development. These materials together, describe the proposed Master Plan for the development and this text in particular, presents a concise summary of the larger amount of background material generated during a lengthy design study. The Master Plan proposes flooding the bayfront area of the site by partially breaching the existing levee, thereby creating a new embayment, island, embankment, and park to serve as habitat for varying types of plant and wildlife. The remaining property behind the embankment or levee would then be developed into a light industrial and commercial project possibly including a restaurant and scattering of professional offices.

The site was formerly held by Holiday Magic Corporation and now Stanley Herzstein, who is Class Action Trustee under the ages of the Ninth District Court, wants to develop and obtain approval for a land usage that would assure the stockholders equitable settlement of their claims against Holiday Magic. The property or site of the Master Plan consists of 92 acres of the East San Rafael wetlands adjacent to, but previously diked off from San Rafael Bay. San Rafael's proposed marina site at Spinnaker Point is the adjacent parcel to the north. The land is zoned "U" and partially "B-C-M" (Unclassified and Planned Commercial and Light Industrial District). It is designated in the General Plan as "Conservation/Recreation with Supportive Commercial/Industrial" uses.

The existing topography and principal physical features of the site are shown on the Aerial Photo and Physiography drawings (Nos. 1 & 2). No fill has ever been placed and the property consists essentially of virgin bay mud surrounded on all sides by levees constructed and maintained by the City. A flood control drainage pond forms the central southern boundary and seasonally flows over the small existing dike to flood the entire site. Attributes of the present habitat are outlined on page 2 of Appendix B. No permanent structures exist within the property boundaries; a small pump building for the drainage pond stands on the southern levee and a beached dock-like structure is stranded within the interior. The major existing vegetation of brush and pickweed is significant for its shelter or faunal food value and not for aesthetics. Current access to the site is restricted to the northern or southern levees which may be approached from either Bellan Boulevard or the drainage pond access road respectively.

To the north of the property lies the proposed marina site previously mentioned. The levee along San Rafael Bay forms the eastern boundary and both the drainage pond and the San Quentin Disposal Site form the southern; the Bahia de Rafael Industrial Park exists to the west separated from the site by Kermer Boulevard and a fourth levee.

Willis and Associates, Inc., 545 Mission Street, San Francisco, California 94105

1

K-5

INTRODUCTION

1.0

Neither the nature of the site, the distinguishing features, nor the proposed use are at variance with the area or uses already examined in the Environmental Impact Report prepared for the East San Rafael portion of the Redevelopment Plan. This report could be used to further evaluate the project.

If the proposed Master Plan is eventually approved, the applicant does not intend to proceed personally with construction. The property would be sold to a potential developer to carry out the dictates of the approved scheme. The parcel labelled "B" on the Site Plan might conceivably be sold separately. One of the inherent concerns in the development of the scheme has been to achieve a balance between a design which is specific and thorough enough to guarantee that the individual concerns of all the City and other agencies are satisfied yet not so restricting that potential buyers are discouraged by a lack of any freedom whatsoever.

Willis and Associates, Inc., 545 Mission Street, San Francisco, California 94105

2

K-6

PROJECT DESCRIPTION - HABITAT RECREATION AREA

2.0

2.1 DESIGN CONTEXT

The design process for this project began with the realization that, given an ecologically sensitive site, any proposed scheme should contain inherent provisions for mitigation of impact. Input from a biotic consultant, Madrone Associates, was included from the beginning. Madrone outlined the general approaches which could be followed to intensify and increase the habitat value of various portions of the site and the Architect-Planner developed the chosen approach into a physical design which incorporated continuing environmental input at all stages. The resultant Habitat/Recreation Area follows the General Plan for the area and works in conjunction with the built portion of the project; it is not an isolated, separate entity. Appendices B, C and D record critical steps in this design process and provide additional technical data.

2.2 CONCEPT

The probable construction sequence for the area helps to explain the nature and function of the component parts. First, a new levee is to be constructed, following San Rafael's engineering specifications for realignment, which cuts into the site to leave approximately 32.6 acres of property on the Bay side. The configuration of this levee and the new embayment formed reflect the typical land forms created when sloughs or rivers reach a bay. A 20 foot wide maintenance road runs atop the new levee which is raised approximately 4 feet above the finished settled construction grade to the west. The eastern side of the levee slopes gradually downward into the new embayment until it reaches the minimum existing elevation. This embankment is to be precisely graded so that slides in the area will encourage the development of the ecological zones and specific species shown in the Site Section drawing (No. 4). Initial development may include seeding this area. A 6 foot path exists 4 feet down from the maintenance road on the embayment side for pedestrians. A bicycle path should occur either here or on the maintenance road depending on required surfacing and predicted traffic volume. Due to the depressed elevation and subsequent placement of plants near the road, pedestrians on the path will be screened from the buildings on the other side. Plants will grow also on this other side where the slope faces the buildings and will provide additional habitat cover while serving as a screen for any security barriers required to protect the sites. After construction of the new levee and embayment, the existing levee will be breached in two locations expanding the Bay into the area and exposing it to tidal action. Additional fill and plant materials are then to be added to the remaining central portion of the levee forming a new island. Wildlife will be able to use the island, free from many predators. A small park, lodged between the drainage pond and the southwest corner of the embayment, forms the last element of the Habitat/Recreation area. The park will provide additional habitat and a shaded, secluded resting area for the use of people passing along the several paths or working within the development.

Willis and Associates, Inc., 545 Mission Street, San Francisco, California 94105

3

K-7

PROJECT DESCRIPTION - HABITAT RECREATION AREA

2.0

The combination of elements provides a total Habitat/Recreation area of 32.6 acres or 35.5% of the property; the Site Plan indicates contributing areas of the various elements. Since San Rafael has indicated an unwillingness to accept a dedication or maintain the area, maintenance at least might be accomplished by creating an assessment district out of the Industrial/Commercial development behind it.

2.3 EMBAYMENT

The embayment proper is the heart of the Habitat/Recreation Area and rides varying from mean lower low water to extreme high water will intersect the carefully calculated embankment slope at specific intervals as the grade rises. Mudflat, low marsh, mid marsh, and high marsh ecological zones will be created by this overlapping, repetitive tidal action. Section AA on the Site Section drawing (No. 4) depicts the process graphically and displays the typical plant and animal species expected to occur as a result. Most of the species involved in the embayment are dependent on one another. Some are linked in a food chain cycle and others by habitat requirements. The higher land areas are particularly important in the last instance since they provide shelter and, in the case of the island, isolation. The final result will be the creation of over thirty acres of extremely dense habitat value which also provide recreational opportunities and make an aesthetic contribution.

2.4 ACCESS

The current site plan could be modified to combine an interior pedestrian easement with one of the proposed storm drainage easements leading from the Access Road to the levee around the drainage pond. This levee will first have to be built-up from the small existing one and then, with the proposed easement, could provide clear and direct circulation from project to park. Access from the interior might be particularly necessary during the noon hour when high usage could occur. Public access from outside the development would be provided primarily by Bellan Boulevard and future expansion of the bayfront open space strip to the north and south beyond the subject property.

2.5 SUMMARY

Three summary points are inherent in the design of this portion of the Master Plan:

1. Consultation with the Environmental Consultant and design of the Habitat/Recreation area was the first step and influenced or controlled all subsequent steps.
2. The embayment and associated areas are clearly intended to mitigate the impact of the built project.

Willis and Associates, Inc., 545 Mission Street, San Francisco, California 94105

4

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3. The conceptual planning and specific scheme developed might indicate a direction and process which could be applied to the general bay front area.

3.1 DESIGN CONTEXT AND USES

Westward of the proposed levee delineating the boundary of the new embayment lie 50.7 acres of land which, when combined with the 8.7 acres of Parcel 8, yield 59.4 acres. The Site Plan shows these parcels developed into the access roads and sites of an industrial/commercial development. The permitted uses are to be restricted to activities normally termed "light" industrial or commercial, similar to those currently existing along Kerner Boulevard or in the Bahia de Rafael Park. These do not produce excessive air pollution, odor, heavy metals, excessive noise, large amounts of waste, or traffic. Manufacturing or repair activities would be required to take place completely within the building. Shopping centers already exist to support local housing and no need is currently foreseen for supermarkets, multi-product convenience businesses, retail chain stores or fast food franchises. Warehousing, storage, single item retail sales and certain types of customer service would be permitted in addition to manufacturing and repair. The design is also suitable for some restaurants and a mix of professional offices which could take advantage of sites with a bay view. Waterfront oriented activities would be appropriate to the strip of land running along the Bellan Boulevard extension, particularly if San Rafael's marina is realized.

The conditions, covenants and restrictions which define and control each permitted use might be very similar to those established for the Bahia de Rafael Park and should begin with them as a basis for future discussions between the City and the principal developer.

3.2 LOTTING

The lot lines shown on the Site Plan are a schematic example rather than a fixed plan. They depict one possible scheme which is indicative of the intended sizes and configurations of individual lots. In general, the minimum lot size is 1 acre except along the prime Bellan Boulevard strip where 4 lots of approximately 1/4 of an acre appear justified due to the value of the location and geometry of the land available. Three ranges of lot size are shown on the Plan which correspond to the normal requirements of the 4, 5 or 6 building sizes expected. Lots should not be subdivided into smaller ones than shown but obviously could be combined to form larger parcels. Combined parcels would be particularly appropriate in the northwest corner near the cul-de-sac where larger industries would be furthest from the Habitat/Recreation area and bayfront sites. At least one of each size site has been rendered to show the intended relationship between buildings, parking and landscaping as well as possible setback and site coverage requirements.

A more flexible alternate method of lotting might be chosen. Following this method, the buildable land is divided into planning strips of approximately 30 foot widths. Strips are then com-

bined and sold to prospective buyers depending on the site area required. CC&R's can prevent development of single strips or small combinations by requiring minimum site areas and setbacks. The principal advantage of this strip approach is that it enables an owner to respond to the varying demands of prospective buyers whose spatial requirements in projects of this nature are difficult to predict. Lot lines fixed in advance of the acquisition of tenants are not likely to be as closely matched to their needs and will adversely affect the economic future of the development.

3.3 SETBACKS, HEIGHT, SITE COVERAGE

Minimum setbacks are proposed of the following order:

Front - 40-50 feet
Side - 10 feet between buildings
Rear - 20-25 feet

These figures could be increased for very large lots. Side setbacks might be satisfied with two 15 foot setbacks on either side of a property line of one side coincident and the other offset 30 feet or some combination of the above. Front setbacks are intended to preserve the appearance of the entire project from the major roads and to insure that a consistent area of each lot will be reserved for landscaping. Rear setbacks will protect the overall property boundaries and the transition area between development and the new levee. Site coverage shall be approximately 50% with a maximum height restriction of about 50 feet. These figures might vary according to use or if a special permit is obtained.

3.4 LANDSCAPING

As shown on the site plan, individual owners will be required to landscape the front setback area of each site and all remaining areas not paved or built upon. Approved landscaping would be installed within a fixed period following occupancy or completion and thereafter maintained and irrigated by the owner.

3.5 PARKING

All parking shall be paved, off-street, restricted to the side or rear of each lot, and prohibited within the landscaped front setback area. Buildings and pavement shall also be configured to assure that all loading or unloading operations can be conducted entirely within the property lines and cannot occupy above a certain percentage of the front setback area. All vehicles involved in these operations must, when parked, be on site occupying only the areas listed above. Parking lots shall not occur closer than 5 feet to a side or rear property line unless adequately screened. Driveway cuts will be limited to one for each 100 feet of frontage or a maximum of two per lot.

3.6 DESIGN REVIEW

After initial preparation of the site and sale to a principal developer, plans for the development of each site and building shall be submitted to the City of San Rafael for design review according to the procedures in effect at the time. A set of specific architectural guidelines concerned with heights, spacing, materials, glazing, signage, etc. could be initially incorporated into the CC&R's in an attempt to develop an architectural consistency and identity within the entire Industrial/Commercial area.

The project will require service from vehicles ranging from bicycles, public buses and private cars to emergency vehicles, pick-ups, panel trucks and long-haul rigs. An Access Road similar to the one indicated on the Site Plan will provide internal circulation; although the specific configuration shown may be altered as the design is refined and more specific criteria become available. The intent of any access road should be to link major points of entry and provide a simple circulation pattern which services all expected lot configurations. The present design consciously creates certain lot geometries relating to the bay view and new embayment while requiring a minimum amount of pavement. Cul-de-sacs, such as the one shown, may be positioned to reach deep into the building sites in the area where larger size operations are expected. A sidewalk will occur on at least the embayment side of the street where the major portion of circulation to the restaurant, park or embayment paths is expected.

As the Site Plan shows, the present owner would consider developing one half of the segment of Bellam Boulevard presumably extended according to San Rafael's marina proposal. A sidewalk would be included along this southern side turning inward where the two roads join to form the northern entry to the project. Should the marina plan not be approved, the site would still require northern access provided by the extension of Bellam. Funding the extension would probably be a matter of negotiation since the road would service both the project and San Rafael's existing storage site.

The developer and the City will combine in some proportion to construct the Kerner Boulevard Extension following existing plans if this pattern of shared costs is followed by other landowners in the area. Southern entry to the project will occur at the junction of the Access Road and Kerner Boulevard extension.

Location of a public transit stop near the site would probably result in a significant reduction of total traffic connected with the project.

The Site Plan also indicates the locations and configurations of the pedestrian path, bicycle path and levee maintenance road. All are intended to tie into patterns which are either existing, currently proposed, or suggested for adjacent sites. Use of the interior Access Road should be restricted to fire and emergency vehicles and those using or servicing the Industrial/Commercial area. The public, however, is expected to have access to the other three paths from either inside or outside of the project. Bollards or gates might be installed to prevent usage of the maintenance road by unauthorized vehicles.

UTILITIES

5.0

A new sanitary sewage line will be installed within Bellam Boulevard and the Access Road connecting eventually through Kerner to the existing line in Francisco Boulevard. The impact of the new load should be minimal due to the uses on site. Costs of the installation along Bellam and Kerner would be shared by the City and principal developer.

Gas and electricity will be provided by PG&E from current facilities associated with either Bellam, Kerner or Francisco Boulevards.

The utilities and grading drawing (No. 5) lists the settled elevation of the Access Road low points at 3.5 feet. This grade is the minimum required to prevent flooding and was chosen deliberately as a low point so that individual sites could drain into the Access Road and thence, through three collectors, directly into the drainage pond. Sites, including the park, which border directly on the drainage pond could be graded to flow uninterrupted into the pond.

The existing bay outfall from the pump station will almost certainly be pressed out of alignment as the levee above is filled out. The Site Plan shows this pipe relocated in advance to empty into the new embayment. Recent research studied by the Biologic Consultant suggests that the drainage flow will not be harmful to plant or animal life in the new embayment.

The available geologic information on the site includes appendices E, F and G plus pertinent sections of the final environmental impact report for East San Rafael and the experience of Oberkammer and Associates, a local civil engineering firm. The Architect/Planners acquired the services of an independent geotechnical consultant to review this information and provide advice during the design process. Appendix G documents his opinion that the existing EIR describes the technical conditions at the site sufficiently for the current level of planning and that the Master Plan is not at variance with the geotechnical character. This study should satisfy the requirements of paragraph C, table 2, page 17 of the San Rafael General Plan.

In brief, the major portion of the site consists of virgin bay mud of varying depth, showing evidence of compaction only by machinery temporarily involved in levee construction. No faults or underground channels are known to exist in the immediate area. The bay mud depth gradually decreases in the northeastern corner of the site around Murphy's Rock, the most prominent geological feature. Obviously a significant and varying subsidence is expected. The Civil Engineer's drawing shows estimated construction and settled grades based on the calculated subsidence. Building foundations in the immediate area of Murphy's Rock will have to be carefully designed to allow for the possibility of uneven settlement.

The expected fill quantities based on the current Master Plan follow:

Import Fill for Embayment, Slope and Island	250,000 cu. yds.
Import Fill for Development	1,240,000 cu. yds.
TOTAL	1,490,000 cu. yds.

PHASING

7.0

The development sequence of the project involves three parties: the current owner, a principal developer, and the individual owners or tenants. The current owner intends only to secure approval of a definitive Master Plan for the property.

The land will then be sold to a principal developer who may, in conjunction with the City of San Rafael and within the constraints of the Master Plan, arrive at the final details, uses, regulations, etc. This developer will prepare the sites for sale and lease by successive steps which might occur in the following order:

1. Complete preliminary filling and grading of all major areas of site. Relocate drainage pond outfall.
2. Construct pedestrian, bicycle and maintenance vehicle paths.
3. Construct Access Road and extensions of Bellam and Kerner Boulevards. Install major utilities.
4. Complete rough grading of individual lots.
5. Install landscaping and seeding as required in Habitat/Recreation area.
6. Open levee to flood new embayment.

The principal developer, then, will essentially create the Master Land Plan, prepare the site for individual lot development, and be responsible to the City for carrying out the intent of the Master Plan. He would probably begin negotiations with individual tenants or owners at any point after purchase of the property.

Individual owners will be responsible for development of the separate lots including grading, landscaping, utilities, paving and building. They must have all plans approved by the City's planning and design review mechanisms for use, conformance, safety and aesthetics. The conditions, covenants and restrictions, along with the proposed architectural criteria, will provide guidance during this last phase of development.

The economic paragraphs of this report present timing estimates for the above phasing.

Sufficient preliminary studies have been completed to formulate only rough estimates of the expected income generated by the project:

Economics Research Associates of San Francisco were contracted to perform a preliminary land absorption study. Their time-phased estimate is based on an earlier market analysis for mixed industrial/commercial uses and is summarized in the following table.

Land Use	Acres Per Year				Total
	1	2	3	4	
Industrial	8	10	12	8	38
Office	1	1	1	1	4
Restaurants	1	-	-	0.8	1.8
TOTAL	10	11	13	9.8	43.8

As shown, absorption of industrial land will start at 8 acres in the first year and increase to 12 acres in the third year. At this rate a total of 38 acres will be sold in 3.7 years. Approximately 1 acre per year can be absorbed for office development, representing 30,000 square feet of office space. Based on the experience of other business parks and the site's advantageous waterfront location, ERA estimates that approximately 1.8 acres can be developed for restaurants. In the first year of sales, a one acre prime waterfront site should be provided for a restaurant developer. In the final year of project sales, another site of almost an acre could be absorbed for additional restaurant space. If the City's plans for a marina adjacent to the subject site are realized, the potential for additional restaurant and related retail development will be enhanced. Thus, an additional 2-3 acres of land near the proposed marina should be reserved for sale until the future of the marina can be determined.

As shown above, the total 43.8 acres of developable sites on Parcel A can be absorbed in 3.7 years. If the 8.7 acres of Parcel B are also marketed as industrial sites, an additional nine months to a year will be required to completely absorb the project.

Costs to the principal developer are expected to be 50% of his total improvement costs in the first year and 25% for the second and third thereafter. Approximately 12 to 18 months should be required to prepare most of the site. The first tenant might conceivably begin construction near the end of year one and move in near the end of year two.

Based on the above reasoning and assumptions, the two major sources of City income (property tax revenue and sales tax) may be estimated. The following calculations must be regarded as preliminary:

Willis and Associates, Inc. 545 Mission Street, San Francisco, California 94105

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ECONOMIC ANALYSIS

8.0

REVENUES

Property Tax Revenue

Value of prepared land before development of individual lots	\$8,000,000
Assume 50% coverage of 52.5 acres @ \$25 per square foot construction cost	\$28,600,000
Assume remaining 50% as improved area of individual sites @ \$5 per square foot	\$5,700,000
Total Value of developed project	\$42,300,000
Assume 1% property tax for County	423,000
Assume 1.9% City portion of County Property Tax per annum	8,037

Sales Tax

Assume 1.8 acres restaurant use @ 40% coverage = 30,000 square feet	
Assume \$150/sq. ft. sales tax	
Gross Revenue (\$150 x 30,000)	\$4,500,000

Assume 1% sales tax annual income to City 45,000

First time revenues and the income generated by additional assumed retail space should be added to this figure.

COSTS

Estimates from the City on municipal administrative costs and provision of utilities were not available at this writing. These figures will comprise the principal expenses to be balanced against the projected income.

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Appendix

A.0 PROJECT VICINITY MAP

B.0 MADRONE ASSOCIATES MEMORANDUM, FEBRUARY 7, 1978.

C.0 MADRONE ASSOCIATES MEMORANDUM, FEBRUARY 14, 1978.

D.0 MADRONE ASSOCIATES LETTER, JULY 12, 1978.

E.0 HARDING-LAWSON ASSOCIATES LETTER, JANUARY 30, 1976.

F.0 HARDING-LAWSON ASSOCIATES LETTER, NOVEMBER 22, 1977.

G.0 COOPER-CLARK & ASSOCIATES LETTER, JULY 26, 1978.

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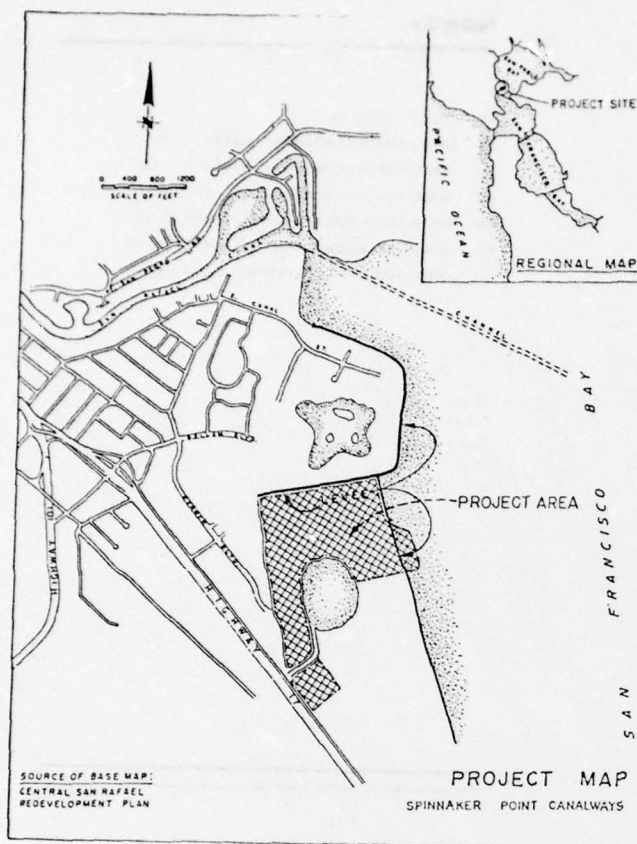
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APPENDIX A

A.0

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APPENDIX B

B.0

Memo To: Chris Raker, Willis and Associates
Subject: Habitat enhancement, Holiday Magic lands
From: Madrone Associates
Date: February 7, 1978

Destruction of existing wildlife habitat through development may in some cases be offset by increasing the habitat attributes of the remaining lands through design and creation of "improved" habitat. An increase in species diversity as well as species abundance are generally understood to indicate an enhanced habitat structure - e.g., a mix of shrubs, trees, and undergrowth results in an increased foliage height diversity that usually increases diversity of wildlife species.

Many rating schemes, for practical reasons, focus on habitat structure as the most direct approach to evaluating wildlife habitat (for example, the USFWS rating system). Diversity is, however, a complex community property that responds to many types of influences beyond the simple structure of habitat.

Four major considerations in establishing or modifying wildlife habitat are:

1. Size of habitat area
2. Shape of habitat area
3. Location of habitat area
4. Biotic components

These considerations can be used as guidelines to establish new habitat or enhance the existing habitat at the Holiday Magic lands:

1. Size
 - o area should be as large as possible - as a general rule of thumb, a 10x increase in the area results in a 2x increase of species numbers in a mature community.
 - o the resource base (food, cover, nest sites) increases directly with an increase in size, benefitting non-resident species also.
2. Shape
 - o in establishing a refuge, round areas are generally preferred to linear ones, because round areas are less likely to lose species through random movement. This theory may be more applicable to larger areas than we are concerned with here.
 - o linear forms (hedgerows of coyote brush, streams) increase the amount of "edge" available, and may attract species not now found on the site, or increase numbers of animals already there (house finches, sparrows, warblers during migration)
 - o linear forms can provide passageways to other patches of habitat, minimizing fragmentation (see note under "Location")
3. Location
 - o regional context is important: value increases with proximity to other similar (natural) areas; use by wildlife and consequently

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2. value declines as isolation from similar areas is increased. Proximity to saltmarshes, mudflats, and open water of San Francisco Bay is a primary asset of Holiday Magic lands.
- o immediate proximity to local wildlife habitats is important. Area selected for enhancement should be adjacent to bay, also to any portions of the upland that may be left undeveloped. Proximity to the planned lagoon on the Spinnaker Point area should be considered.
- o continuity of habitat is important; travel corridors allow wider use of habitat than would occur in a fragmented situation.
- o in an urban setting like this one, isolation from human activity and predation by domestic and introduced animals is vital, particularly for nesting species. Islands are a partial solution for some of these problems.
4. Biotic components
 - o structural diversity of vegetation (trees, shrubs, understory plants; upland and marsh vegetation) maximizes available cover, nest sites, perching areas, shelter, etc.
 - o food resources can be maximized by selected planting programs of terrestrial and aquatic vegetation.
 - o type of vegetation (evergreen, deciduous) affects year-round cover, insect-rich leaf litter.
 - o needs of endemic and other vulnerable species (in this case, the clapper rail and salt marsh harvest mouse) should be given priority over attraction of outside or less vulnerable species.
 - o provision of an otherwise limiting factor may increase habitat value (fresh water is a good example for the setting under consideration).
 - o inherent productivity of various community types being considered in habitat establishment should be considered. Salt marshes (tidal) are among the most productive of ecosystems.

Attributes of present habitat:

Most of the site is low-lying land, with ponded water controlled by pumping, in the center, surrounded by a pickleweed (*Salicornia*) marsh. The present habitat attributes include:

1. Resting and feeding area for wintering waterfowl - open water areas
2. Resting and feeding area for wintering shorebirds - mudflats
3. Filled margins and dikes support rodent populations; burrowing owl observed along western bank.

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MADRONE ASSOCIATES

Environmental Consultants

35 MITCHELL BOULEVARD - PO BOX 2070 - SAN RAFAEL, CALIFORNIA 94002
AREA 415-472-1092

February 14, 1978

A valuable aspect of the site is that it is potentially restorable tidal marsh-land. Because the site has apparently not been filled, restoration could be accomplished with a minimum of effort.

Engineering considerations, habitat establishment:

- o Need for dike construction if area is in part opened to tidal action
- o need for importation of fill to create upland habitats.

MEMO

To: Chris Raker
Willis & Associates
545 Mission Street
San Francisco, California 94105

From: Diane L. Renshaw

Re: Holiday Magic Lands

Enclosed is a table that presents the tidal ranges in the vicinity of the project, the existing elevations on the site, and the elevational requirements of cordgrass (*Spartina foliosa*) and pickleweed (*Salicornia virginica*). High marsh plants include saltgrass (*Distichlis spicata*), gumplant (*Grindelia humilis*), marsh rosemary (*Limonium californicum*), and others.

Please give me a call if you need any more information at this point.

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APPENDIX C

C.O

TIDAL CHARACTERISTICS AT THE PROJECT SITE AND ELEVATIONAL REQUIREMENTS OF SELECTED SALTMARSH PLANTS

OFF SAN QUENTIN 1/ SAN RAFAEL 2/										EXISTING ELEVATIONS ON SITE (AVG.)	
		MSL DATUM	MLLW DATUM	MSL DATUM	MLLW DATUM	CORDGRASS RANGE	PICKLEWEED RANGE	HIGH MARSH			
Extreme High Water (EHW) in feet		6.36	8.96	6.1	8.84	-8 -7 -6 -5 -4 -3 -2 -1		1 1 1 1 1 1 1 1		-8 -7 -6 -5 -4 -3 -2 -1	
Mean Higher High Water (MHHW) (FHM)		3.1	5.7	2.9	5.64	-5 -4 -3 -2 -1				-5 -4 -3 -2 -1	
Mean Sea Level (MSL)		0	2.6	0	2.74	-2 -1 0				-2 -1 0 -1 -2 -3 -4 -5	
Mean Lower Low Water (MLLW)		-2.6	0	-2.74	0	-3 -4 -5				-3 -4 -5	
Data from:											
1/ Joim Cottage, Marin County Flood Control											
2/ Fred Vincenti, City of San Rafael Public Works											
3/ Madrone Associates											

Willis and Associates, Inc. 545 Mission Street, San Francisco, California 94105

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MADRONE ASSOCIATESWe have moved
8 Pamaron, Novato, Calif.
(415) 883 0484

Environmental Consultants

35 MITCHELL BOULEVARD - PO BOX 2070 - SAN RAFAEL, CALIFORNIA 94902
AREA 415-472-1002

July 12, 1978

Mr. Chris Raker
Willis and Associates, Inc.
545 Mission Street, 4th Floor
San Francisco, California 94105

Dear Chris:

Thank you for the opportunity to review the final schematic plans for "Spinnaker Point Canalways". The ecological information which Madrone Associates supplied to you for use in the creation and conceptual design of a tidal embayment and development of the small island habitat appears to have been accurately translated into an imaginative but workable plan for establishment of a tidal community in place of the existing non-tidal wetland.

In view of the highly modified surrounding lands and successive loss of tidal wetlands in east San Rafael, this is the most constructive approach to mitigating the loss of some of the gross acreage of trapped seasonal wetlands on the property. By removing major portions of dikes, restoring tidal action to a part of the area, and creating a gradient which is conducive to reestablishment of a cordgrass and pickleweed marsh, the overall habitat value of the property should be enhanced, and the design solution to a problem which occurs throughout the S.F. Bay Area could well prove to be a model for other architect-site planners working with bay frontages.

We will look forward to further involvement in the project, perhaps in the actual engineering and design specifications for the development.

Sincerely,

MADRONE ASSOCIATES

Nona B. Dennis

NBD: gk

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Willis and Associates, Inc. 545 Mission Street, San Francisco, California 94105

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**HARDING-LAWSON ASSOCIATES**

30 Mitchell Boulevard, P.O. Box 1530, San Rafael, California 94902 - 415/472-1400 - Telex 349523

Consulting Engineers and Geologists

January 30, 1976

5997,002.01

Gonzalez and Oberkamper,
Civil Engineers, Inc.
10 Paul Drive
San Rafael, California 94903

Attention: Mr. Lee Oberkamper

Gentlemen:

Report
Settlement Study
Francisco Company Property
San Rafael, California

This letter presents the results of the settlement studies we performed for the Francisco Company property in the eastern portion of San Rafael, California.

The property, as shown on Plate A, is in a low-lying area adjacent to San Francisco Bay; it has been diked off and partially reclaimed. The dikes range in elevation from about +4 to +10 feet Mean Sea Level Datum (MSL). The property is underlain by soft bay mud which varies in thickness from zero to more than 80 feet. Present elevations vary from about +10 to -3.5 with most of the ground surface being below Elevation -2. A portion of the parcel which fronts on Francisco Boulevard has been filled to about Elevation +3. The only portion of the site which contains no bay mud is in the northeast corner at "Murphy Rock".

The object of our work was to review the soil data available in our files and to provide you with estimates of the varying amounts of settlement to be expected over a 30-year period as a result of bay mud consolidation beneath the weight of new fill. We understand that finished surface elevations of +3 to +6 MSL are required after 30 years.

File Research

Data in our files include the results of soil investigations on portions of the Francisco property itself and on most of the adjoining land.

CALIFORNIA
ARIZONA
TEXAS
ALABAMA
MISSISSIPPI
FLORIDA
GEORGIA
LOUISIANA
MISSOURI
ILLINOIS
INDIANA
OHIO
PENNSYLVANIA
DELAWARE
MARYLAND
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
LOUISIANA
MISSISSIPPI
ALABAMA
ARIZONA
CALIFORNIARICHARD S. HARDING
Civil Engineer
ROBERT T. LAWSON
Civil Engineer
GERALD M. DIAZ
Civil Engineer
KEITH H. BERGMAN
Civil Engineer
E. C. WINTERHALDER
Engineering Geologist
A. L. BUCHANAN
Civil Engineer
JEROME S. NELSON
Geophysicist

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We examined more than thirty boring logs; based on this information, we have plotted the contour lines (shown on Plate A) indicating the approximate elevations of firm soil or rock. The locations of the lines were established by interpolation between the test borings and are therefore approximate. Since the existing ground surface is nearly 0 -3L these contour lines also indicate approximate thicknesses of bay mud.

Findings and Recommendations

Our findings indicate that the settlement of the bay mud for the next 30 years will be relatively uniform except where the mud thickness is less than about 10 feet and on the parcel which fronts on Francisco Boulevard which has been partially filled. The approximate thicknesses of fill and amounts of settlement are presented in the following table.

Site Condition	Mud Thickness (feet)	Amount of Fill Required (feet)	
		+3 ¹	+6 ¹
Unfilled	0 ² - 30	6.5 - 11 ³	9.5 - 15 ³
Unfilled	>30	11	15
Partially filled ⁴	>30	6	9

¹ Refers to Mean Sea Level elevation in 30 years.

² Most of surface presently at -3.5 elevation.

³ Varies depending on thickness of mud, i.e., for 0 mud use 6.5 feet of fill to obtain Elevation +3. For estimating purposes use straight line interpolation.

⁴ Assume Elevation +3 presently.

As the fill is placed, it should be properly compacted to minimize settlement within the fill.

As indicated, our analysis is based solely on existing information available in our files and did not involve additional test borings or other field exploration. Additional soil exploration and

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analysis will be necessary during later stages of project design and development in order to more accurately predict settlement behavior of structures.

If you have questions, please call us.

Yours very truly,

HARDING-LAWSON ASSOCIATES

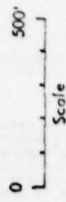
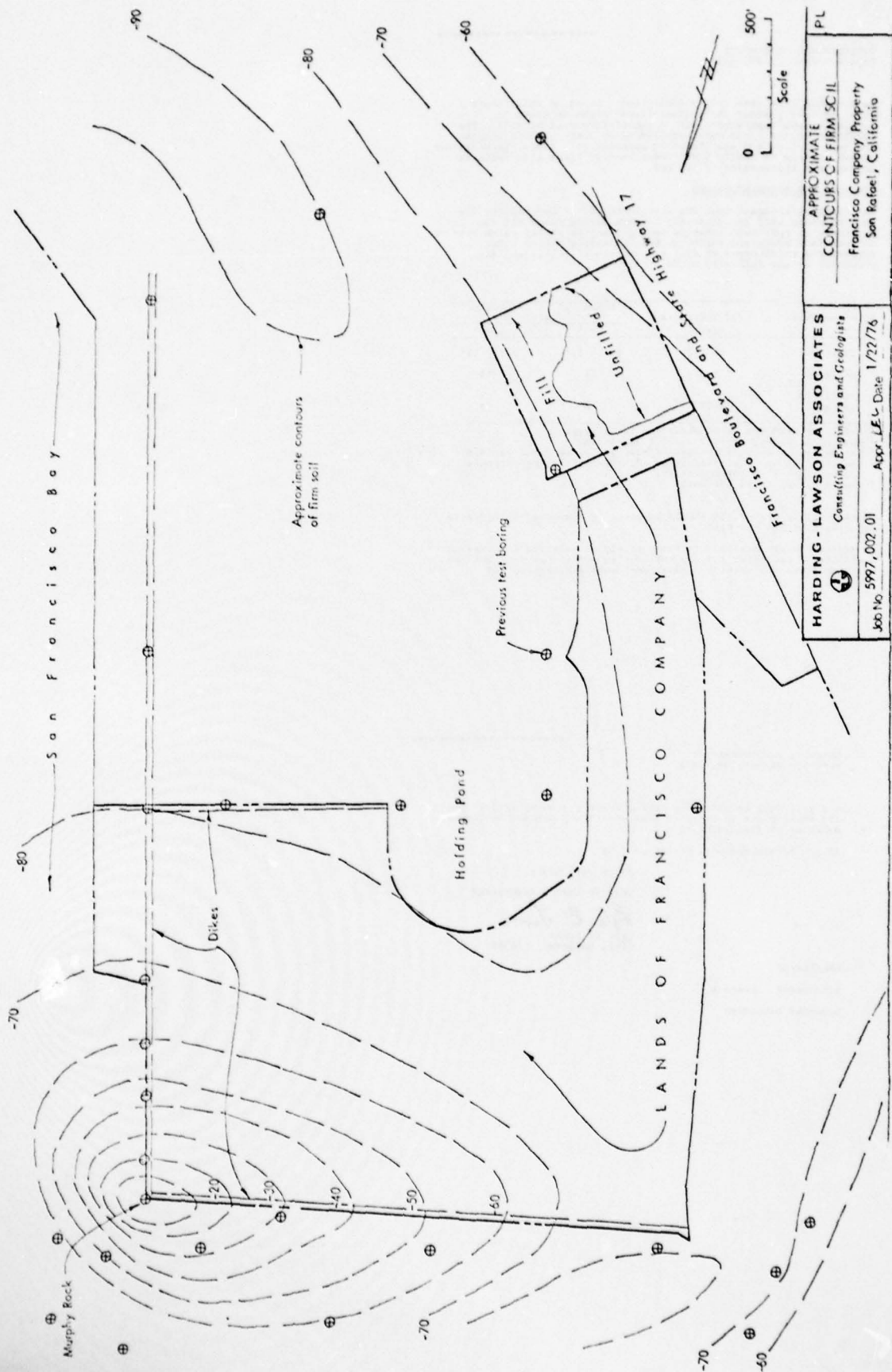
Lyle E. Lewis
Lyle E. Lewis,
Civil Engineer - 16360

LEL/RSW/jd

Attachment: Plate A

3 copies submitted

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HARDING-LAWSON ASSOCIATES Consulting Engineers and Geologists 5997, 002.01 Appr. LEL Date 1/22/76		APPROXIMATE CONTOURS OF FIRM SOIL Francisco Company Property San Rafael, California
Job No. 5997, 002.01 Appr. LEL Date 1/22/76		PL

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EXPLORATION

To explore the surficial soils at the site, 48 probes were drilled at the locations shown on Plate 1. The probes were drilled through the sand fill into the underlying soils. In each probe, the depth of sand fill was carefully measured by one of our technicians.

SURFACE SOIL CONDITIONS

Our field investigation indicates that the site is blanketed with a layer of relatively clean, loose sand varying in thickness from less than 1 foot to approximately 5 feet. Over most of the site the layer of sand is about 4 feet thick. However, around the southern end of Newport Way the sand layer decreases in thickness. In this region the sand fill is from 2-1/2 to 3 feet thick. Beneath the sand are vast amounts of a soft, highly compressible clayey silt commonly referred to as bay mud.

Two of our test probes encountered a very thin layer of sand. Probes 7 and 28. These areas were further explored by numerous hand auger borings revealing a relatively narrow zone, extending outward from both sides of the cul-de-sac in an east-west direction.

DISCUSSION AND CONCLUSIONS

Based upon the results of our investigation, we conclude that the soil conditions present will not preclude construction of the planned development. However, additional fill will be required around the southern edge of Newport Way where the depth of sand is less than four feet thick. Providing the depth of fill over the bay mud is at least four feet, the proposed structures can be supported on conventional shallow spread foundations.

Since the placement of the fill, the site has been settling as the underlying bay mud consolidates. This settlement will continue at a decreasing rate for many years. New fill will initiate additional settlement. While most of the settlement at the site will be reasonably uniform, a small amount of differential settlement is anticipated, primarily due to the variations in bay mud thickness and composition.

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To allow the building to span areas of localized differential settlement and, if necessary, be relieved, the foundation should be a relatively stiff grid of reinforced concrete grade beams and the floors should be structurally supported.

After a review of existing utility plans, it was revealed that the zones of shallow sand are in the vicinity of a 10-foot-wide utility easement. Both a sewer system and electrical conduits have been installed in this area. Therefore, it is probable that the utility trenches were backfilled with the excavated sand and bay mud, the bay mud being placed nearer the surface than in adjacent areas.

The plans indicate that the area west of the southern end of Newport Way will be an open landscaped area; therefore, we do not anticipate that the thin sand layer will present a significant problem. However, on the east side of Newport Way structures are planned near this zone. Consequently, the location of the buildings and the strip of shallow sand fill should be accurately determined prior to construction so that future problems can be avoided.

The relatively loose condition of the sand encountered in our test probes and previous borings suggest that liquefaction could occur during strong earthquake shaking. The possibility of liquefaction will be significantly reduced by densifying the surface sands.

RECOMMENDATIONS

Site Grading

We recommend that all surface vegetation and debris be removed from the site. If necessary, the strippings can be stockpiled for later use in landscaping.

The sand beneath and extending at least five feet out from the perimeter of the proposed structures should be compacted to a relative density* of at least 70 percent. Based upon field compaction studies previously performed at this site, we recommend that the sand be saturated with water prior to compaction. Once this step is completed, a large steel drum vibratory compactor should be used to densify the sand. Our test results indicate that the required densification can be achieved by rolling the area at least five times.

* Relative density shall be determined in accordance with the ASTM D2049-69 test procedure.

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HARDING-LAWSON ASSOCIATES
35 West Broadway P.O. Box 1000 San Francisco, California 94102-1000
(415) 472-1000 Telex 142523

Engineers, Geologists and Geophysicists

November 22, 1977

3286.001.01

Seaport Development Company
655 Redwood Highway, Suite 300
Mill Valley, California 94941

Attention: Mr. Ronald F. Storch

Gentlemen:

Report
Surface Soil Investigation
Spinnaker Point, Phase I
San Rafael, California
For Seaport Development Company

This report presents the results of our surface soil investigation for the Phase I development at Spinnaker Point in San Rafael, California. The location of the site in relation to adjacent streets is shown on the attached Plate 1, Test Probe Locations.

During our investigation we have used a drawing entitled, "Site and Landscaping Plan - Phase I," dated May 1, 1977, and an untitled drawing dated July 21, 1977, both by Dan Coleman & Associates. Also, we have reviewed our three previous soil reports for the Spinnaker Point project.

The objectives of our investigation were to explore the sand fill blanketing the site so that its depth, on a lot by lot basis, could be estimated. In addition, we were to provide design and construction recommendations for site grading and foundation support.

At one time the site was part of a relatively large marshland along the San Pablo Bay. Approximately 15 years ago, levees were constructed around the area isolating it from tidal action. At a later date, hydraulically placed bay mud was pumped into the area followed by a layer of hydraulically placed sand. Currently, the site is relatively flat and sparsely covered with weeds. A detailed description of the site history, test borings and subsurface conditions is contained in our earlier reports.

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The additional fills that are required can be constructed with the on-site sand or imported select fill. Fill materials should be free of all organic matter and rocks exceeding six inches in greatest dimension. It should have a low expansion potential by having a liquid limit less than 40 percent and a plasticity index less than 15 percent.

Fills should be constructed in layers not exceeding eight inches in loose thickness. Each layer should be moisture conditioned and compacted to a relative compaction* of at least 90 percent. If sand is used, it should be compacted to a relative density of at least 70 percent. Fill slopes steeper than 2:1 (horizontal to vertical) should not be used.

Foundation Support

Footings should be embedded in properly compacted fill at least 12 inches below the adjacent final ground surface elevation. In all cases there should be at least three feet of properly compacted soil between the bottom of the footings and the underlying soft muds. Excavations should be clean and free of all loose compressible material. Building footings should be positioned at least five feet from zones of shallow sand. If this criteria cannot be met, we recommend that the area be overexcavated to a depth of at least four feet and backfilled with compacted soil.

Footings can be designed using allowable soil bearing pressures of 1000 pounds per square foot (psf) for dead load plus long-term live loads and 1500 psf for total loads that include wind and seismic forces. However, footings should not be less than 12 inches or 18 inches in width for perimeter wall and interior column footings, respectively.

Review and Inspection

We should review the final plans to check for conformance with our recommendations. One of our engineers should inspect the compaction of the surface sands on a full-time basis. The compacted material should be tested to check that the required relative density is achieved. In addition, we should inspect and test fill

* The term "relative compaction" refers to the ratio of the in-place soil dry density to the maximum dry density of that same soil, as determined by the ASTM D1557-70(C) test procedure.

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Willis and Associates, Inc. 545 Mission Street, San Francisco, California 94105



cooper-clark & associates
CONSULTING ENGINEERS

July 26, 1978
Our Job No. 2096-FC

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President
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placement and inspect footing excavations. This will allow the actual site conditions to be correlated with those observed in our investigation and, if necessary, permit us to modify our recommendations at the earliest possible time.

Yours very truly,

HARDING-LAWSON ASSOCIATES

James P. Bowers

James P. Bowers,
Project Engineer

W. E. Lewis

W. E. Lewis,
Civil Engineer - 16360

JPB/LEL/jd

Attachment: Plate 1 - Test Probe Locations

2 copies submitted

1 cc: Lang Engineering
7 Parnon Way
Novato, California 94947

Attention: Mr. Arthur J. Lang

1 cc: Lincoln Construction Company
1060 Oak Grove Road, No. 8
Concord, California 94518

Attention: Mr. L. H. Lincoln

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Mr. Chris Raker
Willis & Associates, Inc.
545 Mission Street
San Francisco, CA 94105

RE: Consultation
Geotechnical Site Condition and
Conceptual Grading Plans for Spinnaker
Point Canalways, San Rafael, California

Dear Mr. Raker:

As requested, we have reviewed the geotechnical portions of the "Final Environmental Impact Report on the Amendments to the East San Rafael Portion of the Central San Rafael Redevelopment Plan and on the Urban Design and Development Policy Statement" (Final EIR). The purpose of our review was to form an opinion as to whether or not the geotechnical description contained in the Final EIR was representative of the subject site. To assist in forming an opinion, we researched and reviewed geotechnical reports in our files concerning land immediately west of the captioned site and reviewed the following reports by Harding-Lawson Associates:

- Settlement Study, Francisco Company Property, San Rafael, California
- Surface Soil Investigation, Spinnaker Point, Phase I, San Rafael, California, for Seaport Development Company

Based on our study of the foregoing documents, we are of the opinion that the Final EIR reasonably describes, in general terms, the geotechnical conditions at the site.

We were also requested to review from a conceptual geotechnical standpoint the preliminary grading plans of the project as shown on the undated 100 scale plan, sheet 3, titled Spinnaker Point Canalways by Willis & Associates and Oberkammer and Associates.

We trust this provides the information you require at this time.

Very truly yours,

COOPER, CLARK & ASSOCIATES

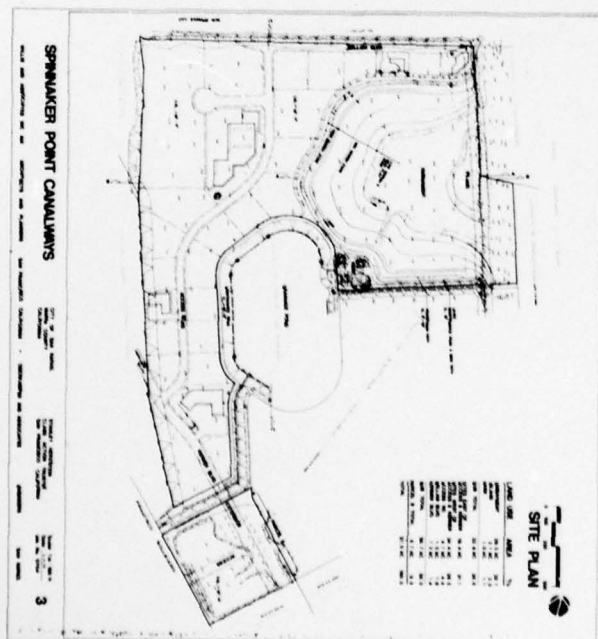
Helena Peterson

STERLING ATKINSON
Civil Engineer - 20043

SA/py

S-44

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